

TC-K222ESL/K870ES

SERVICE MANUAL

E Model
TC-K222ESL

US Model

Canadian Model

UK Model

E Model
TC-K870ES



Photo : TC-K870ES

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
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Model Name Using Similar Mechanism	TC-K222ESG
Base Unit Name	TCM-200D4

SPECIFICATIONS

Recording system	4-track 2-channel stereo
Fast winding time	Approx. 90 sec. (with Sony C-60 cassette)
Bias	AC bias
Heads	Erasing head × 1 (LA head) Recording head × 1 (LA head) Playback head × 1 (LA head)
Motors	Capstan motor × 1 (direct-drive linear torque BSL motor) Reel motor × 1 (DC motor) DC motor × 1
Wow and flutter	±0.04% W.Peak (IEC) 0.024% WRMS (NAB) ±0.065% W.Pead (DIN)
Signal-to-noise ratio (NAB, at peak level)	
Dolby NR switch	OFF
Cassette	B-Type ON
Type IV (Sony METAL-S/SLT)	61 dB
Type II (Sony UX-S)	59 dB
Type I (Sony HF-S)	57 dB
Total harmonic distortion	1.0% (with Sony METAL-S/SLT cassette)
Frequency response (DOLBY NR OFF)	
Type IV cassette (Sony METAL-S/SLT)	15 - 22,000 Hz (±3 dB) 15 - 16,000 Hz (±3 dB) 0VU recording
Type II cassette (Sony UX-S)	15 - 20,000 Hz (±3 dB)
Type I cassette (Sony HF-S)	15 - 17,000 Hz (±3 dB)

Inputs		
Line inputs (phono jacks)	Sensitivity	77.5 mV
CD DIRECT input (phono jacks)	Input impedance	47 kohms
Outputs		
Line outputs (phono jacks)	Rated output level	0.44 V at a load impedance of 47 kohms
	Load impedance	Over 10 kohms
Headphones (stereo phone jack)	Output level	0 - 2.5 mW at a load impedance of 32 ohms

General	
Power requirements	Model for European countries: 220 - 230 V AC, (or 240 V AC adjustable by Sony personnel), 50/60 Hz
	Model for US, Canada: 120 V AC, 60 Hz
	Model for the United Kingdom: 240 V AC (or 220 V AC adjustable by Sony personnel), 50/60 Hz
Power consumption	Model for other countries: 120, 220, or 240 V AC adjustable, 50/60 Hz 23 W

- Continued on next page -

STEREO CASSETTE DECK
SONY®

Dimensions	Approx. 430 × 135 × 350 mm (w/h/d) (17 × 5 3/8 × 13 7/8 inches)
	Approx. 470 × 135 × 350 mm (w/h/d)* (18 5/8 × 5 3/8 × 13 7/8 inches)*
Weight	Approx. 6.9 kg (15 lbs 4 oz) Approx. 7.9 kg (17 lbs 7 oz)*

* including projecting parts, controls and wooden side panels

Supplied accessories Audio connecting cord (2)
Wireless remote commander J701 (1)**
Sony size AA (R6) batteries (2)**

** Except for the United Kingdom, Canada and Germany model

Design and specifications subject to change without notice.

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

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SAFETY-RELATED COMPONENT WARNING!!

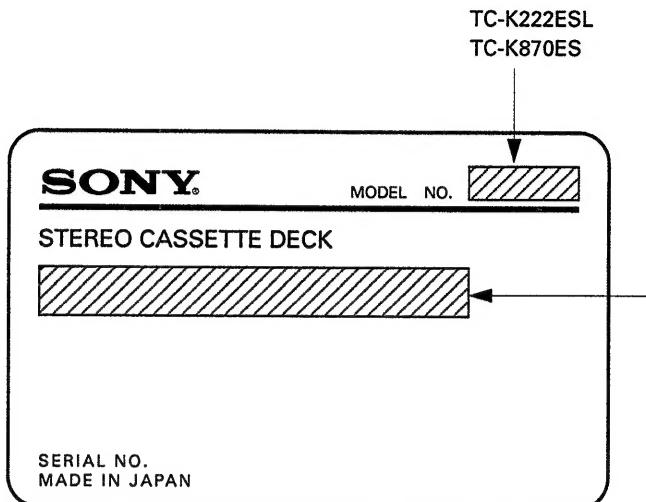
COMPONENTS IDENTIFIED BY MARK Δ OR DOTTED LINE WITH MARK Δ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE Δ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

MODEL IDENTIFICATION

- PANEL , BACK -



US, Canadian MODEL : AC 120V, 60Hz 23w
 UK MODEL : AC240V, 50/60Hz
 Germany MODEL : AC220-230V, 50/60Hz
 E MODEL : AC120, 220, 240V, 50/60Hz 23w

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer: Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig.A)

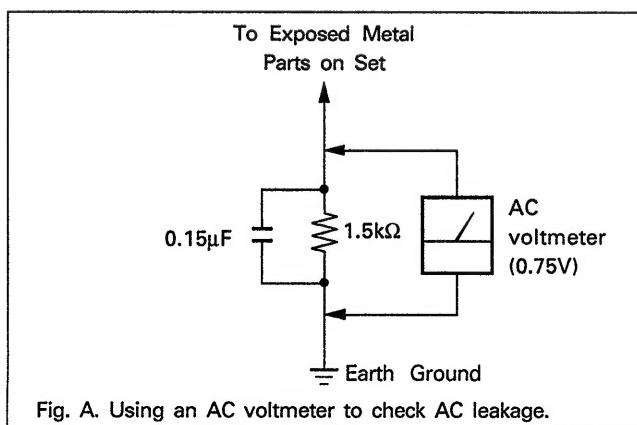
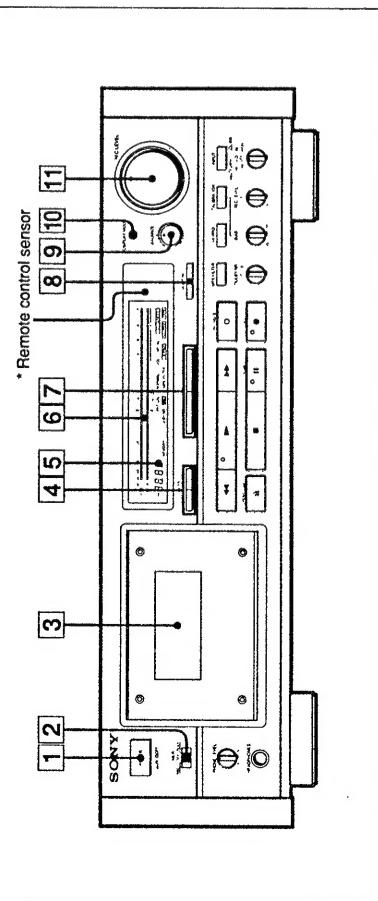


Fig. A. Using an AC voltmeter to check AC leakage.

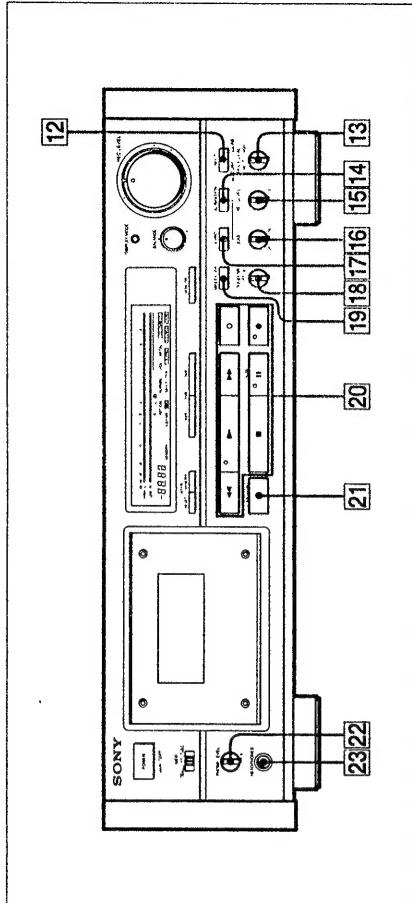
SECTION 1 GENERAL

Identification of Front Panel Parts



For details, refer to the page number indicated in ●.

(Continued on next page.)



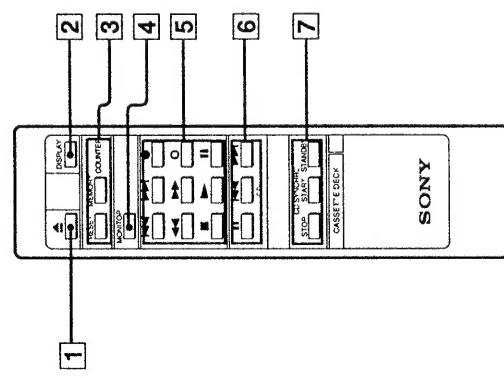
For details, refer to the page number indicated in ●.

(Continued from previous page.)

This section is extracted from
instruction manual.

Remote Commander

(Except for the United Kingdom, Canada and Germany
(mode))



The controls on the remote commander are identical in function and operation to those with the same name on the main unit.

For details, refer to the page number indicated in **●**

- 1** ▲ (open/close) button
- 2** DISPLAY button
- 3** Counter buttons
- 4** MONITOR button
- 5** Tape operation buttons
- 6** CD (Compact Disc) buttons
for controlling Sony CD players
II (pause) button
◀ / ▶ buttons for locating selections sequentially
- 7** CD SYNCHRO buttons
for synchronized recording with a Sony CD player

Installing Batteries

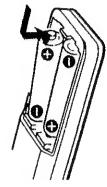
On battery life

- About half a year of normal operation can be expected when using the Sony SUM-3(NS) batteries.
- When the batteries are run down, the remote commander will not operate the unit. In this case, replace both batteries with new ones.
- On handling
 - Keep the commander away from extremely hot or humid places.
 - Avoid dropping any foreign objects into the commander casing, particularly when replacing the batteries.
 - Avoid exposing the remote sensor to direct sunlight or lighting apparatus. Such exposure can cause a malfunction.
 - To avoid damage caused by battery leakage and corrosion, remove the batteries when the commander will not be used for a long time.

1



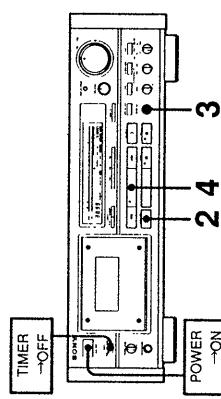
2 Insert two size -AA(R6) batteries.



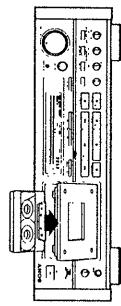
Playing Back

Follow the procedure below to play back a cassette.

1 Turn on the amplifier and select the tape function.



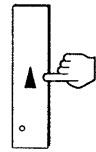
2 Insert a cassette.



3 Set DOLBY NR to the same position that was used when the cassette was recorded.



4 Start playback.



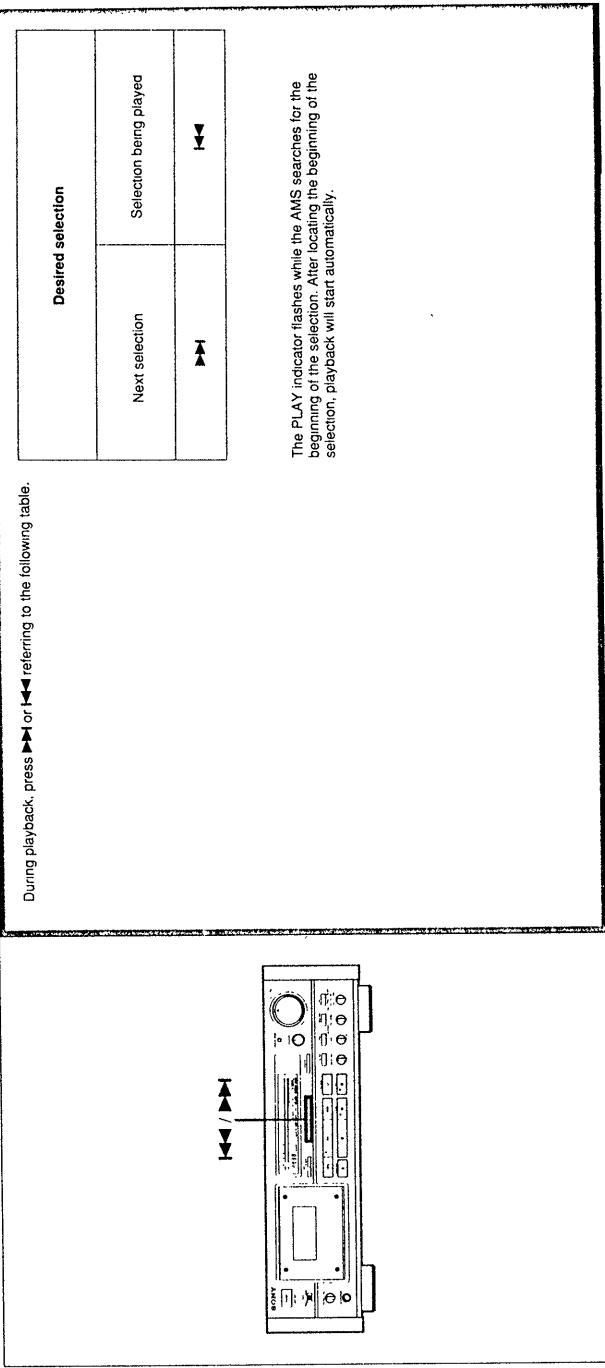
- To stop playback, press the ■ button.
- To stop playback momentarily, press the ▯ or ▲ button.
- To restart playback, press the ▯ or ▲ button.
- To fastwind a tape rightward, press the ▷ button in stop mode.
- To fastwind the tape leftward, press the ▷ button in stop mode.

Locating a Selection

- Automatic Music Sensor (AMS)

Selecting the display mode
You may choose among three display modes by pressing the DISPLAY MODE button: (1) all indications are displayed; (2) only the counter is displayed; or (3) no display.

The AMS function detects the blank space between selections, allowing you to quickly locate the beginning of desired selections.



To start operations while the cassette holder is open
Operations may be started while the cassette holder is open. For example, when the ▶ button is pressed while the cassette holder is open, the cassette holder will close and playback will start. Similarly, pressing the ▶, ▲, or ▶ buttons while the cassette holder is open will close the cassette holder and start the respective operation.

To change to recording mode during playback
Keeping the ▶ button pressed, press the ● button. The unit immediately switches from playback to recording without stopping the tape. This is useful when editing previously recorded material.

For headphone listening
Connect the headphone plug to the HEAD PHONES jack. The listening level can be controlled with the PHONE LEVEL control.

Is it necessary to set the MONITOR button for playback?
No. The TAPE mode is automatically selected and TAPE is displayed.

What is Dolby NR system?
The Dolby NR (noise reduction) system reduces tape hiss noise in low-level, high-frequency signals by boosting the signals during recording and lowering them during playback.

Note
The Dolby HX Pro system is effective only during recording, not during playback.

The AMS may skip a selection in the following cases:

- If the ▶ or ▲ button is pressed immediately before the following selection.
- If there is noise in the space between selections.
- If the space is less than four seconds long.

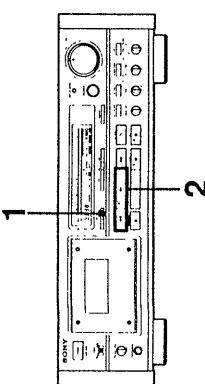
The AMS will treat the following as blanks:

- a long pause in the music
- a passage of low frequencies or very low volume
- a gradual increase or decrease in volume

Playing Back Automatically after Rewinding - Auto Play

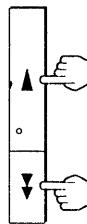
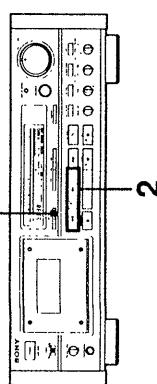
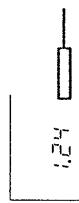
The Auto Play function automatically starts playing back a cassette after fast winding it to the beginning.

1



Make sure the MEMORY indicator is off.
If it is not, press MEMORY.

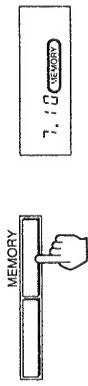
2 While pressing ▶, press ◀



Locating a Desired Position Using the Counter - Memory Play

The Memory Play function allows you to use the counter to record a desired position on a cassette for fast relocation and automatic playback later.

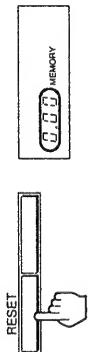
1 Activate the Memory Play function.



Returning to the memorized position in stop mode
— **Memory stop**
If you press only the \blacktriangleleft button when the MEMORY indicator is on in the stop mode, the tape rewinds and the unit stops when the counter reaches 0.00.

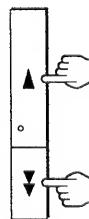
To deactivate the Memory Play function
Press the MEMORY button, turning off the MEMORY indicator.

2 At the desired position, reset the counter.



The desired position is memorized.

3 To return to the desired position
While pressing \blacktriangleleft , press \blacktriangleright .



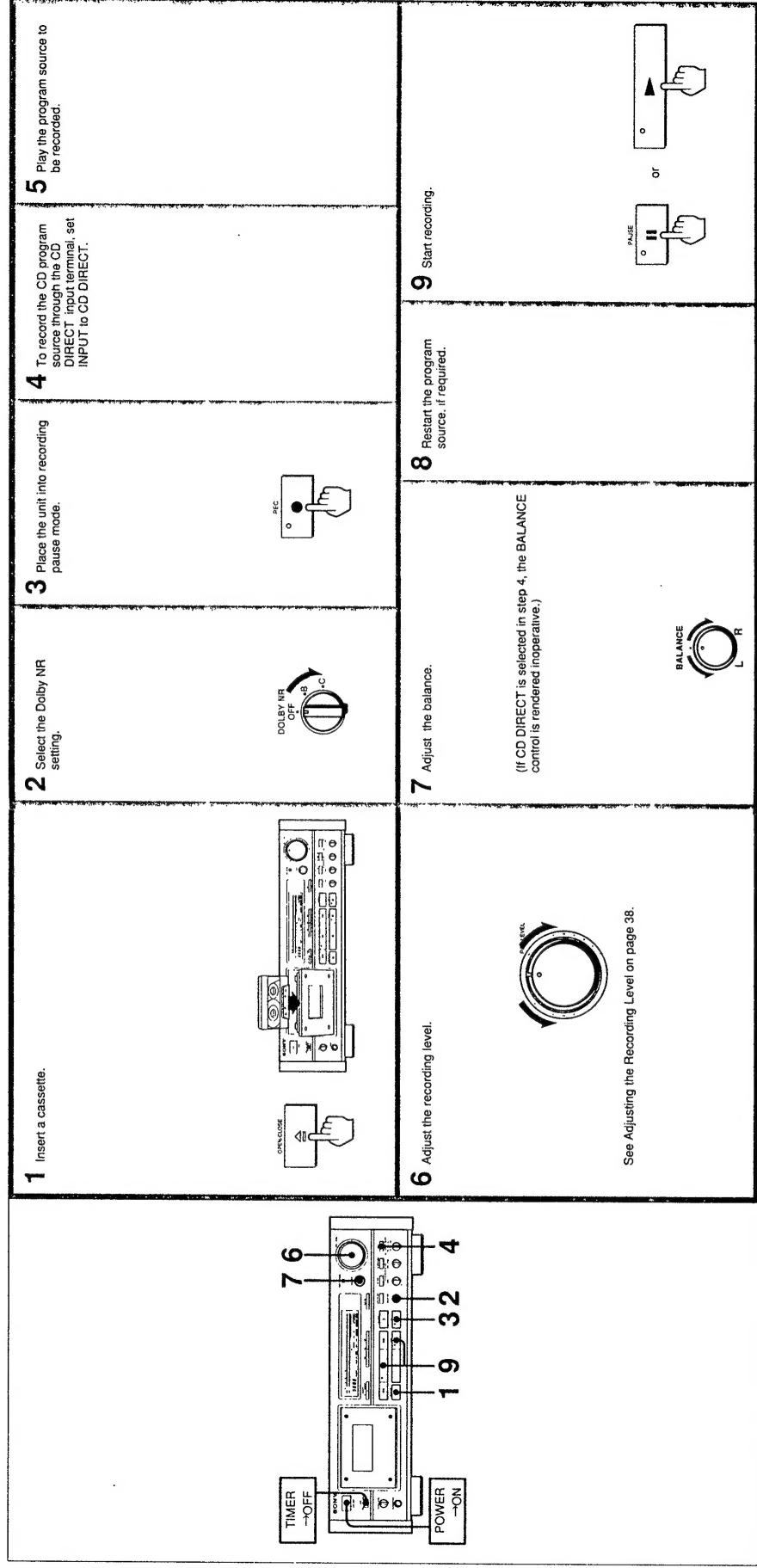
Note on Memory Play/Stop
In actuality, the tape is rewound to slightly short of 0.00.
Do not turn off the power while using the counter
Turning the power off, then on again resets the counter to 0.00.

The Accuracy of the Linear Counter

Since the counter is not a digital clock, the number will differ from the actual elapsed playback or recording time by a few minutes, depending on such factors as tape length and hub size.

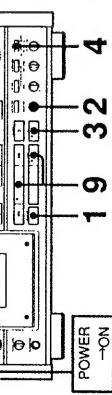
Recording

Follow the procedure below to record a source on a cassette.



See Adjusting the Recording Level on page 38.

(If CD DIRECT is selected in step 4, the BALANCE control is rendered inoperative.)



To stop recording
Press the ■ button.

Regarding CD direct input
Connecting a CD player directly to the CD DIRECT terminals will result in a higher quality recording. However, when the INPUT button is set to CD DIRECT, the BALANCE control and MPX filter are rendered inoperative.

Recording with the Dolby HX Pro system
Press the HX PRO button to turn on the Dolby HX PRO function. Use the MONITOR switch to verify the effects of the function.

Making an Optimum Recording According to the Tape Type

Monitoring the Recorded Sound

As this unit has three separate heads for recording, playback and erasure, you can check the quality of a recorded sound by comparing it with the input source signal.

To listen to the input source signal, set the MONITOR button to SOURCE.

To listen to the sound recorded on the tape, set the MONITOR button to TAPE.

While recording, use this monitoring function to check that there is no distortion due to excessive level settings or sound degradation due to head contamination.

Adjusting the Recording Level

The optimum recording level, which differs according to the tape type, is indicated on the PEAK PROGRAM METER for each tape type.
Adjust the REC LEVEL control as high as possible without exceeding the recommended range for the tape type being used.

Recommended maximum PEAK PROGRAM METER reading

If playback starts instead of recording
The cassette tab has been removed. To record on this cassette, cover the hole with plastic tape. (See page 48)

The TIMER switch must be set to OFF
Otherwise, recording or playback will start automatically when the power is turned on.

Is it necessary to set the MONITOR button for recording?
No. The source mode is automatically selected and SOURCE is displayed. If you wish to monitor the recorded sound, press the MONITOR button to select the TAPE mode.

To start recording while the cassette holder is open
If you press the **●** button while the cassette holder is open, the holder will close automatically and the unit will switch to recording pause mode. This function allows you to start recording at a moment's notice.

Checking the recording time on a tape

To check the remaining recording time on a tape:

- 1 Press the RESET button to reset the counter to 0.00.
- 2 Press **▶▶** to advance the tape to its end. The number on the counter shows the approximate recording time.

To check the total recording time of a tape, first rewind the tape to its beginning, then follow the same steps as above.

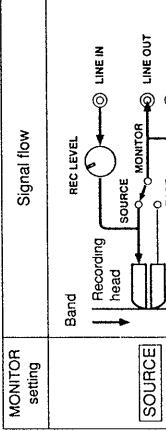
- If the recording level setting is too high, the recording will be distorted; if it is too low, the tape will produce a hissing sound. Therefore, the recording level should be set as high as possible without causing distortion.
- If the program source to be recorded has many high frequency signals, set the level to a relatively low position.

Recording FM Broadcasts with the Dolby NR System

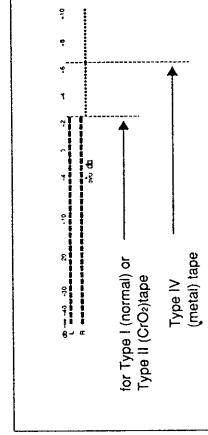
When recording FM broadcasts with the DOLBY NR system, set the MPX FILTER button to ON (the "FILTER" indicator appears).

The MPX filter eliminates remnants of the 19-kHz stereo carrier and 38-kHz subcarrier signals which may impair the operation of the DOLBY NR system. Be sure that the Dolby NR switch is turned on since the MPX filter will not function otherwise. During recording with the Dolby NR system, use this button only if the tuner is not equipped with its own MPX filter or the equipped filter does not function effectively.

MONITOR button setting and signal flow



The source signal can be monitored.

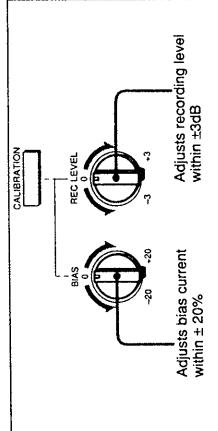


Tips on recording level adjustment

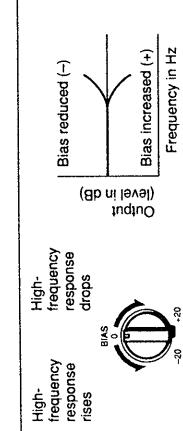
- If the recording level setting is too high, the recording will be distorted; if it is too low, the tape will produce a hissing sound. Therefore, the recording level should be set as high as possible without causing distortion.
- If the program source to be recorded has many high frequency signals, set the level to a relatively low position.

Bias and Recording Level Calibration

There are many different types of cassettes on the market, each with varying magnetic properties. Although your unit is equipped with the A/Ts (Automatic Tape Selection) system which sets the appropriate equalization characteristics and bias current for each tape type, an additional calibration adjustment can often produce even better results. Use the bias current and recording level calibration function to obtain the optimum recording conditions for your tape.



Bias calibration
Choosing the optimum bias current for a tape ensures minimum distortion and flat frequency response. Lowering the bias current boosts high-frequency response, but also results in higher distortion. Raising the bias, on the other hand, reduces distortion, but also damps high-frequency response. Optimum bias is thus obtained when the bias current and high-frequency response are well matched.

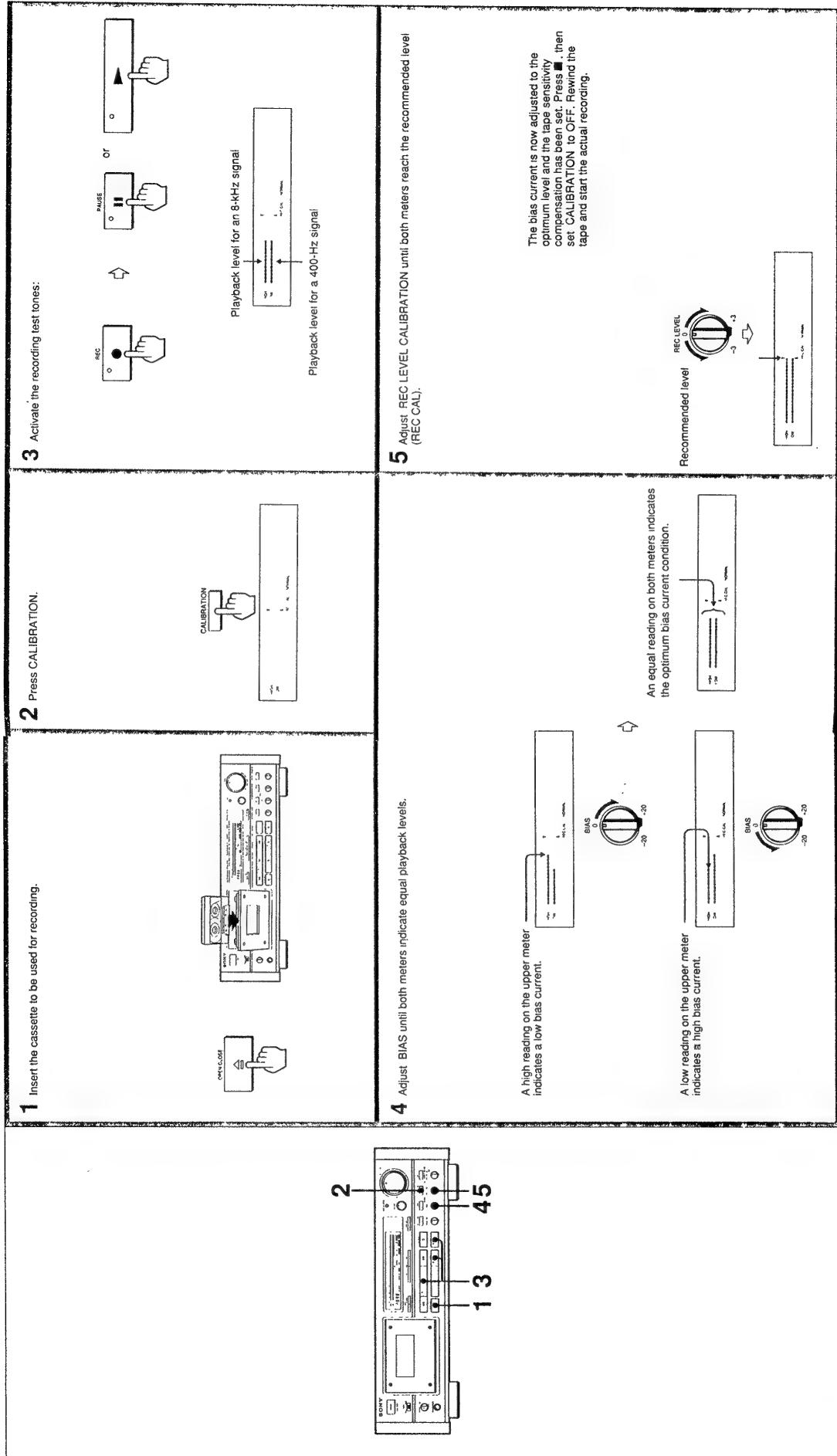


• If the bias current is higher or lower than the optimum setting for a certain tape, the frequency response changes as shown in the chart above. Changing the bias can thus be used to tailor the response to your liking, for example by slightly emphasizing the upper or lower end.

- The frequency response of metal tapes is much less affected by changes in the bias current than other tape types. With some tapes, the adjustment range of this deck ($\pm 20\%$) may therefore not be sufficient to cover every possible requirement.

Recording level calibration

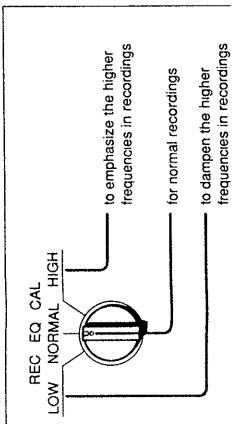
Even when the recording level is adjusted correctly, using a tape with low sensitivity will result in a low playback level. The RECORD LEVEL calibration control allows you to compensate for sensitivity differences among tapes to equalize both recording and playback levels. This is especially important when using the Dolby NR system, since it is most effective when recording and playback levels are the same.



Recording

Recording Equalization Calibration

Although bias current and equalization are automatically set by the Automatic Tape Selection (ATS) function for the tape being used, you can use the REC EQ CAL switch to change the recording characteristics according to the nature of the source material or to compensate for the particular characteristics of the tape.



Bias Calibration Recording

To modify bands of sound as required, use the REC EQ CAL switch in conjunction with bias calibration, which enables you to record according to the tape's characteristics.

When recording music which has strong middle and low frequencies

Set the bias at flat with the REC EQ CAL switch set in the HIGH position to increase the bias current. Adjust BIAS so that the HIGH and LOW meters indicate equal readings.

• When recording music which has strong high frequencies

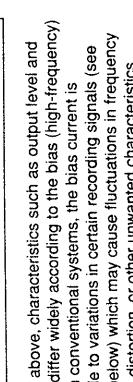
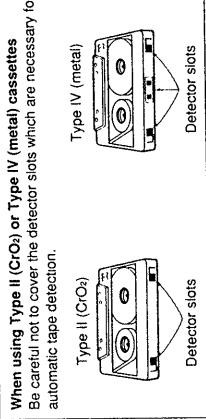
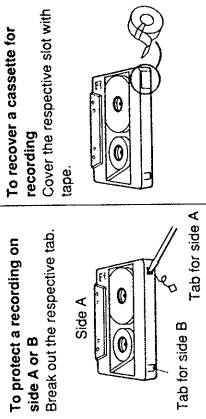
Set the bias at flat with the REC EQ CAL switch set in the LOW position to decrease the bias current. Adjust BIAS so that the HIGH and LOW meters indicate equal readings.

Note
With metal tape, because the amount of frequency characteristic modulation is not in proportion to that of the bias, the optimum bias current may not be obtained using the methods above.

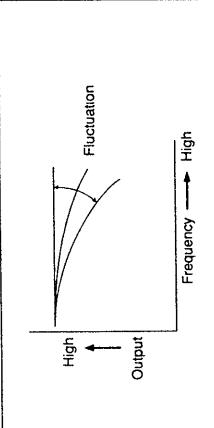
Another use of the REC EQ CAL switch

When using a special tape, the BIAS control with the REC EQ CAL switch set in the NORMAL position may not cause the HIGH and LOW meters to indicate equal readings. If this occurs, adjust the BIAS control after setting the REC EQ CAL switch to HIGH or LOW.

To Protect a Recording



The Dolby HX PRO system provides improved linearity in high-range frequency response during recording. Tapes recorded with this system retain the same high quality even when played back on other tape decks.



As shown above, characteristics such as output level and distortion differ widely according to the bias (high-frequency) current. In conventional systems, the bias current is susceptible to variations in certain recording signals (see diagram below) which may cause fluctuations in frequency response, distortion, or other unwanted characteristics.

Inserting a Blank Space during Recording – Recording Muting

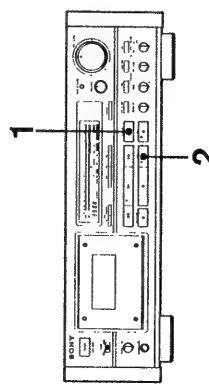
The Record Muting function allows you to insert a four-second blank to enable proper AMS operation (see page 26), and to replace unwanted input with a blank of any desired length.

1 While recording, press **O** and release it immediately.



2 Resume recording.

The **[REC]** indicator starts to blink. During this time, no incoming signals are recorded on the tape. After four seconds, the **■■** indicator lights up and the unit enters recording pause mode.



2 Resume recording.



2 Resume recording.

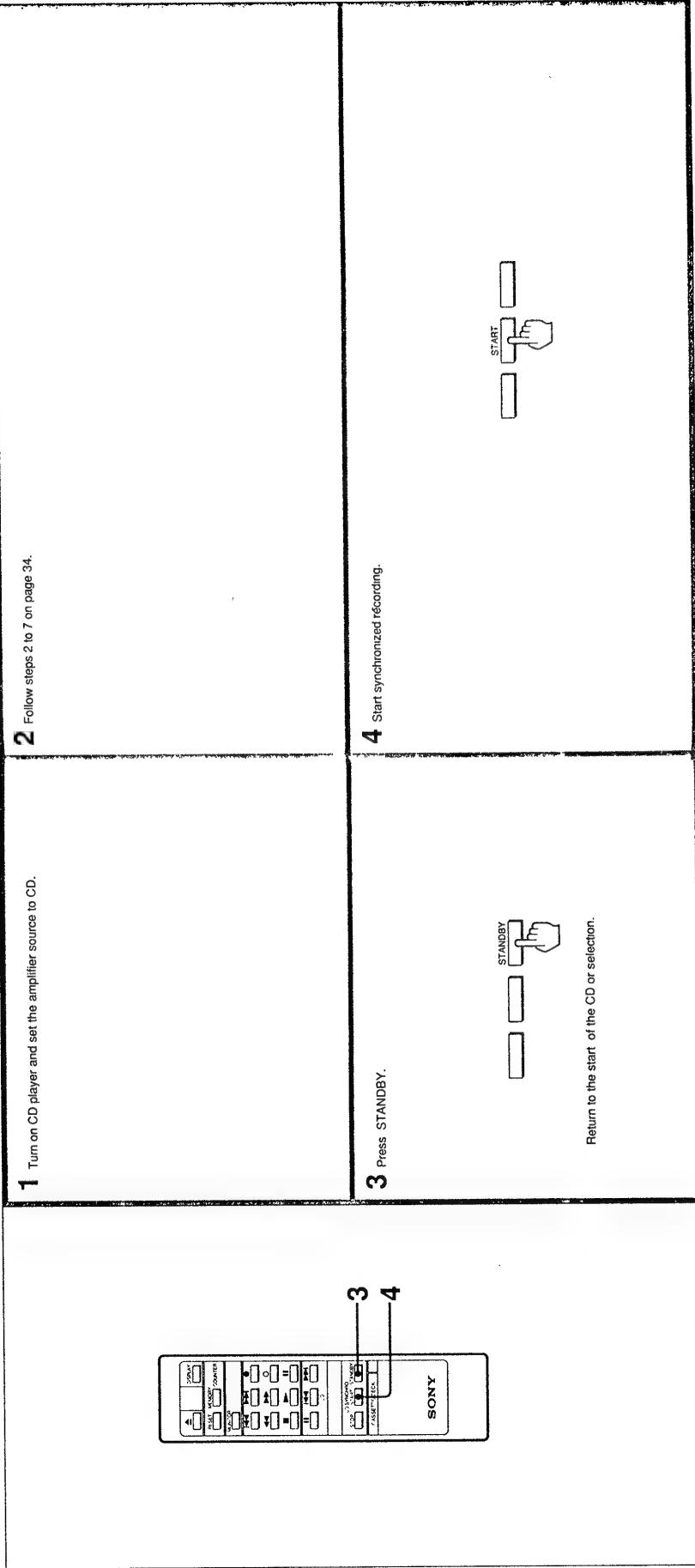
The **[REC]** indicator starts to blink. During this time, no incoming signals are recorded on the tape. After four seconds, the **■■** indicator lights up and the unit enters recording pause mode.

To create a blank longer than four seconds
Press the **O** button for the desired length of time. After four seconds, the **[REC]** indicator blinks with greater rapidity. When you release the **O** button, the **■■** indicator lights up and the unit goes into recording pause mode.
Press the **■■** button to resume recording.

Synchronized Recording with a CD Player

(Except for the United Kingdom, Canada and Germany model)

You can use your remote commander to perform synchronized recording operation on your cassette deck and a Sony CD player.

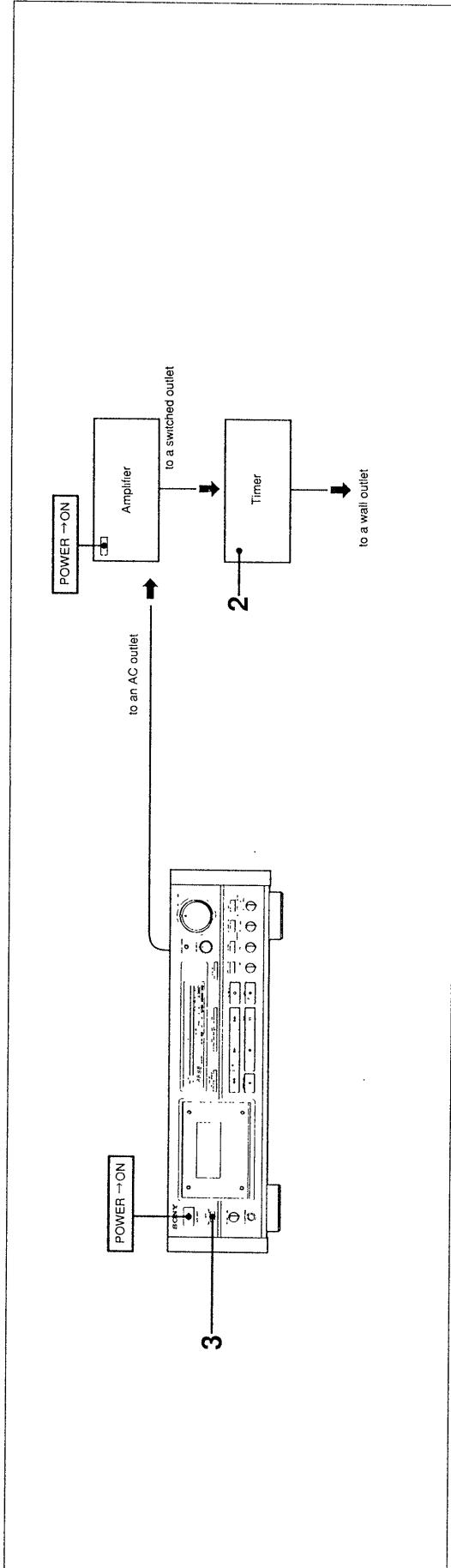


To stop synchronized recording
Press the STOP button on the remote commander.

Notes on CD recording with the remote commander
 Point the remote commander at the remote control sensor and operate the remote commander slowly.
 • Do not press the same button (for synchronized recording) repeatedly.

Time-Activated Playback and Recording

By connecting an optional timer, recording or playback can be performed automatically at a preset time.



1 Prepare the unit for playback or recording.

For playback	Follow steps 1 through 3 on page 22.
For recording	Follow steps 1 through 7 on page 34.

Close the holder completely.

2 Set the timer to the desired time.
Power to the tape deck will be cut off.

3 Set the deck's TIMER switch to PLAY or REC.
Playback or recording will start at the preset time.

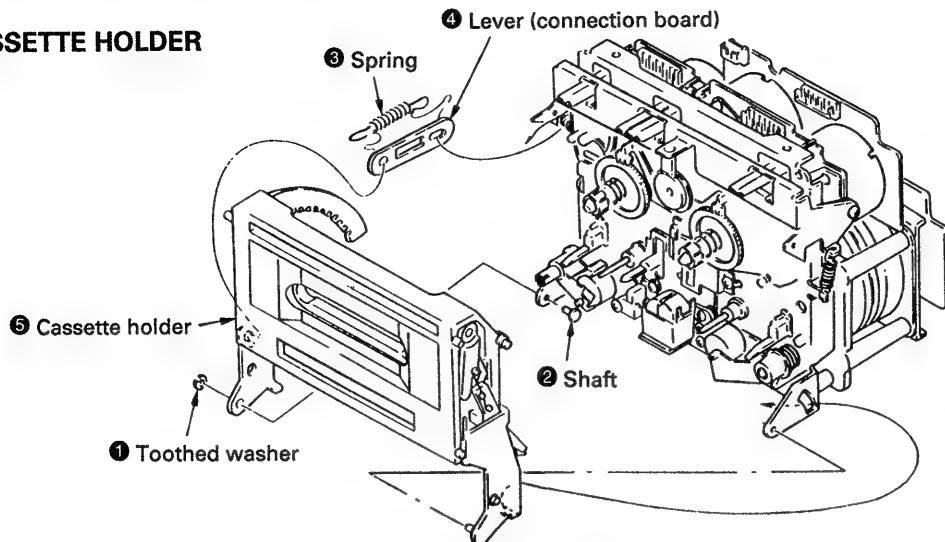
Keep the POWER switch on the unit on
When the timer is set, the power to the unit will be cut off.
However, the POWER switch must be on to start timer-activated operation.

When the timer-activated operation is completed
Set the TIMER switch on the unit to OFF. If the TIMER switch is left at REC, the unit will automatically start recording the next time the power is turned on, and the previously recorded material may be erased.

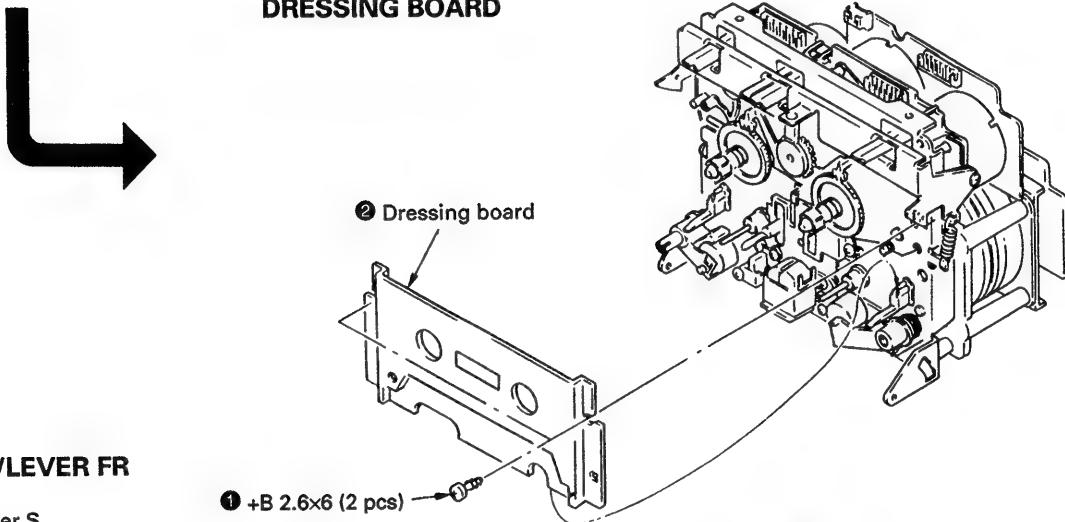
SECTION 2 DISASSEMBLY

- Remove the following devices shown by ①, etc. in the order of the numbers.

CASSETTE HOLDER

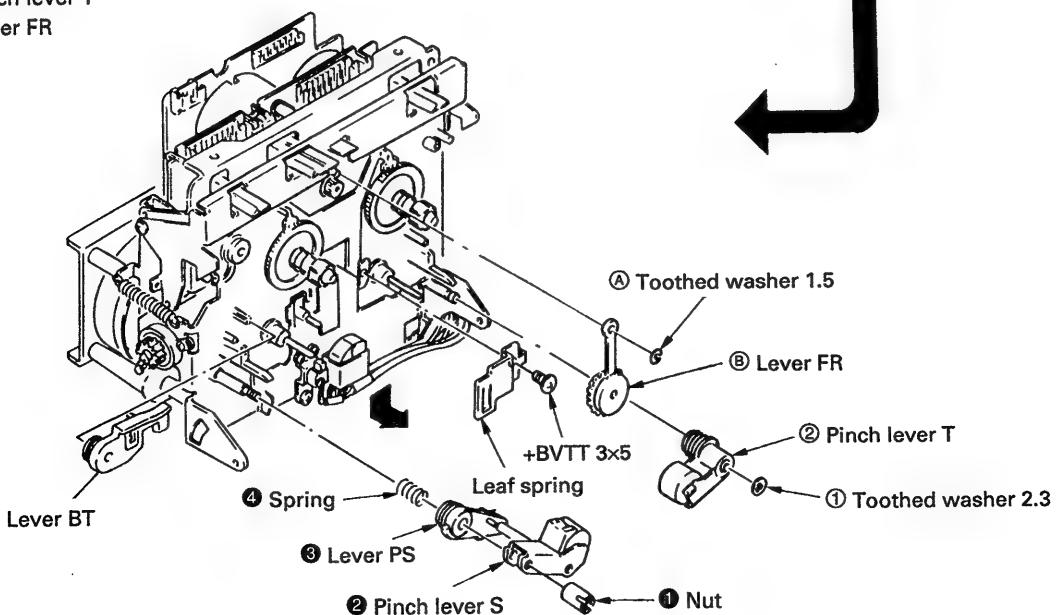


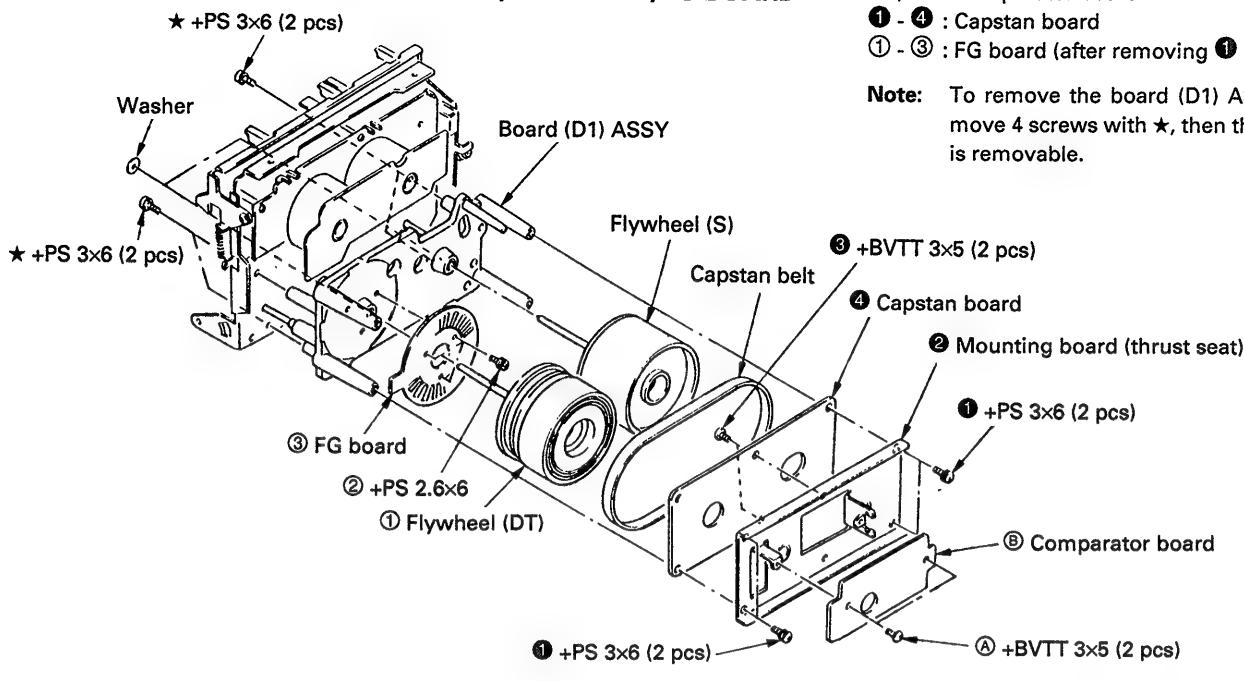
DRESSING BOARD



PINCH LEVER/LEVER FR

① - ④ : Pinch lever S
 ①, ② : Pinch lever T
 ④, ⑥ : Lever FR



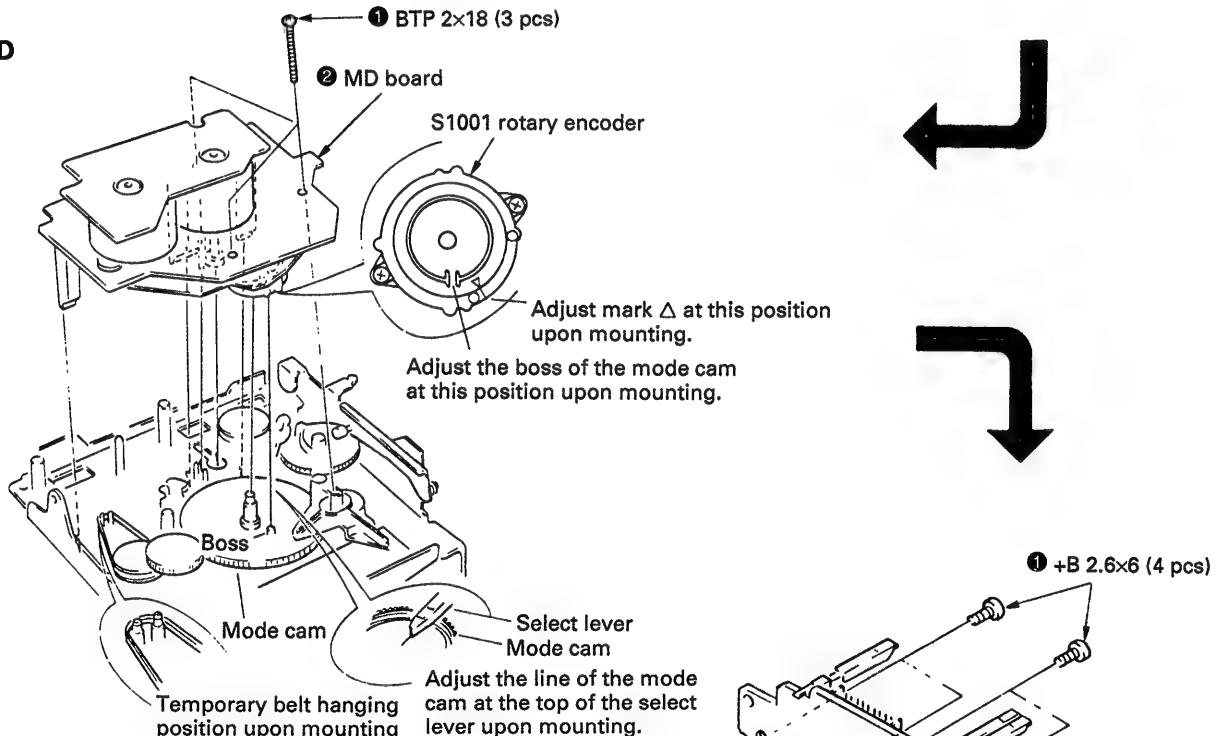
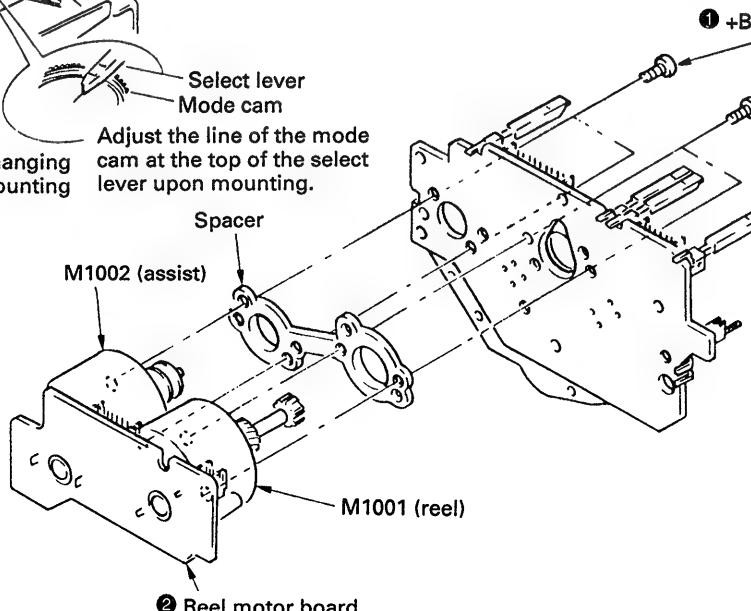
COMPARATOR BOARD/CAPSTAN BOARD/FLYWHEEL/FG BOARD

Ⓐ, Ⓑ : Comparator board

① - ④ : Capstan board

① - ③ : FG board (after removing ① and ②)

Note: To remove the board (D1) ASSY, remove 4 screws with ★, then the ASSY is removable.

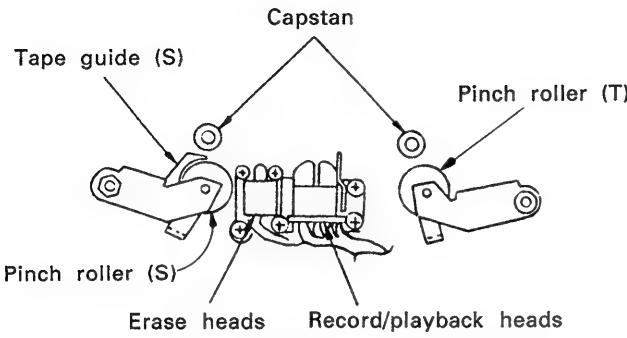
MD BOARD**REEL MOTOR BOARD**

SECTION 3

MECHANICAL ADJUSTMENTS

- Refer to page 21 for Adjustment Location.

PRECAUTIONS

1. Clean the following parts with an alcohol-moistened swab. (tape sliding surface)


The diagram illustrates the path of a tape through a tape deck. It shows the 'Capstan' at the top, followed by the 'Record/playback heads'. Below the heads are the 'Erase heads'. The tape path is guided by the 'Tape guide (S)' on the left and the 'Pinch roller (T)' on the right. The 'Pinch roller (S)' is also labeled, indicating it is a separate component from the main pinch roller.
2. Demagnetize the record/playback heads, erase heads and the capstan using the head demagnetizer.
3. Do not use a magnetized screw driver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustment should be performed with the rated power supply voltage unless otherwise noted.

Tape Passing Adjustment

Note: For the following adjustments, use the jig as far as possible. Although the following methods are operable without using the jig, precise adjustment may not be completed, for example no compatibility to other decks is available even if self recording and playback is OK.

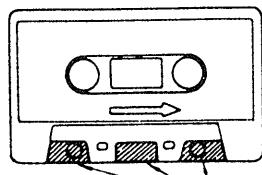
In these adjustments, either the pinch roller guide in the S side or the record/playback head guide is referred to for tape pass. Therefore, do not unnecessarily rotate the adjustment screws including those of the erase heads unless any one is replaced. When 2 or more heads or pinch rollers out of these 2 heads and pinch rollers are to be adjusted or replaced, use the jig for the adjustments or replace one at first and then take complete tape pass and then replace the second one.

Head height adjusting jig : apex

Preparation:

- Mirror cassette CQ009C 8-909-708-01
(Or CQ012C 8-909-708-02)

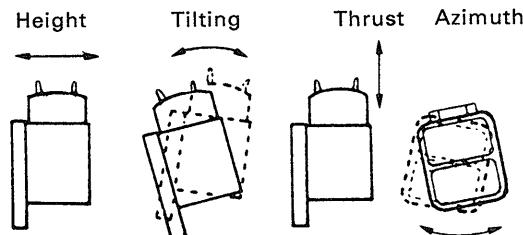
If it is not available, cut a part of the half of a 120 minute cassette tape and use.



- Plus screw driver
Medium size Apply to the head adjusting screw.
Minus screw driver
Large size Apply to the pinch roller adjusting screw in the S side.
- Pen light
- WS-48B (3kHz, 0dB)
- P-4-A100 (10kHz, -10dB)

Definition:

The following view relates to record/playback heads.



For the locations of the adjusting screws, see the view "adjustment location" in the lower right corner of Page 21.

Procedure:**Pinch roller in the S side**

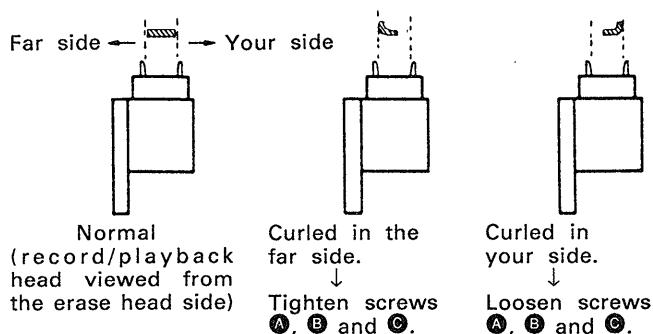
Note: It should be adjusted only when the pinch roller in the S side is replaced.

- Mount the mirror cassette and set the equipment to playback state.
- Check that the tape is curled in the pinch roller guide or the guide of the record/playback heads. If curled, remedy it by rotating the tape curl adjusting screw **H**. At that time, check that the tape runs near the center part of the erase heads.

Record/playback heads

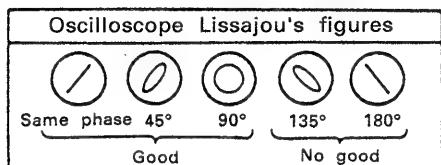
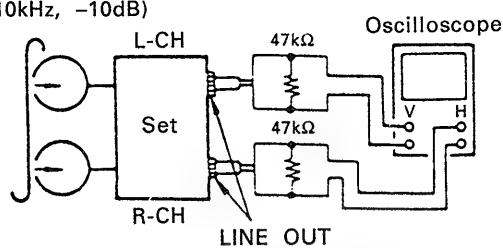
Note: The heads should be adjusted only when the record/playback head is replaced.

- Mount the mirror cassette and set the equipment to playback state.
- (Height adjustment) Check that the tape is curled in the tape guide of the heads. If curled, rotate screws **A**, **B** and **C** in the same angle and move the entire heads parallel. Check the mirror cassette where there is curling and, when curling exists in the lower side (actually in the deep side), tighten all screws slightly. If curled in the upper (your) side, loosen them.



- (Adjustment of tilting) Adjust back tension to 0 still in playback state (loosen the tape by rotating the reel in the S side using a small tip such as a pencil), and check that there is no curling or snaking (up or down) in the guide of the record/playback heads. Snaking of the tape may occur only within the range of a difference in the widths of the tape and the tape guide (it curls when tape slacks more than the range). Therefore, carefully check it because it may often be overlooked. If the tape is snaking, rotate screws **B** and **C** in the same angle and change the tilting of the heads. Tighten or loosen the screws to remedy up or down snaking, respectively.
- Repeat the adjustment 2 and 3 again and converge the height and tilting to suitable positions.
- (Tentative adjustments of azimuth) Demagnetize and clean the heads and playback WS48B (3kHz, 0dB). Rotate the screw **C** so that the pointer of the level meter of the set or connected to LINE OUT becomes maximum. If the screw is rotated more than 1/2 turn, repeat the adjustments again from 1.
- (Checking of tape pass) Connect an oscilloscope to LINE OUT, replay P-4-A100 (10kHz, -10dB) to describe Lissajou's figures. At about 20 seconds after beginning playback (the tension in the loop becomes stable), check that the variation of the Lissajou's figures occur within $\pm 90^\circ$ (more preferably within $\pm 45^\circ$). If beyond $\pm 90^\circ$, adjustments of tilting or height will not be complete, so finely adjust the equipment again from 1.

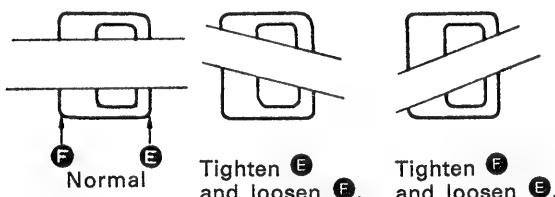
Standard adjustment tape
P-4-A100
(10kHz, -10dB)



Erase heads

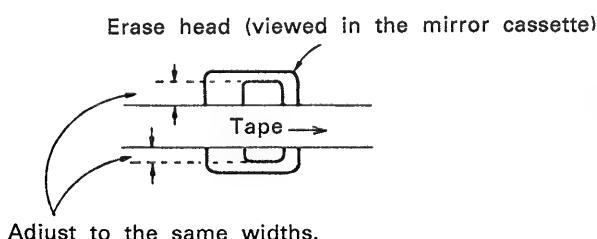
Note: The heads should be adjusted only when the erase head is replaced.

1. Mount the mirror cassette and set the equipment to playback state.
2. (Azimuth adjustments) Adjust screws **E** or **F** so that the tape runs as parallel to the erase heads as possible.



(Erase head viewed in the mirror cassette)

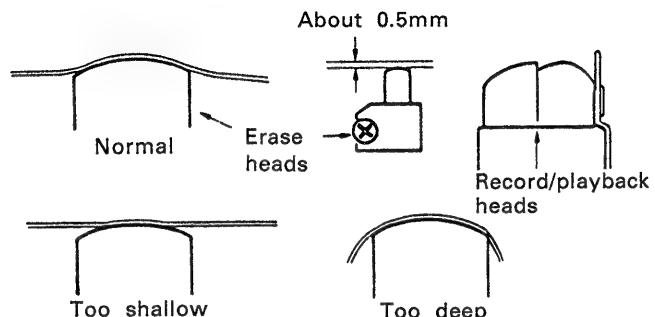
3. (Height adjustment) Rotate screws **D**, **E** and **F** in the same angle so that the widths of erase heads seen in the upper and lower sides of the tape become essentially the same. If the width in the upper or lower side is larger, tighten or loosen the screws, respectively.



4. (Adjustments of tilting) Adjust back tension to 0 still in playback state and check that there is no snaking in the erase heads and pinch roller guide in the S side. If there is, change tilting by rotating the screw **D**. When the tape moves up or down in the mirror tape, tighten or loosen the screw, respectively.

5. Repeat the adjustments again from 2. and converge the height and tilting to more suitable values. And, check that there are no tape curls in the pinch roller guide and the guide of the record/playback heads.

6. (Adjustments of thrust) Slightly loosen the screw **G** and finely adjust it so that the tape smoothly runs over the entire surfaces of the heads by adjusting the thrust of the erase heads to an optimum value relative to the tape.

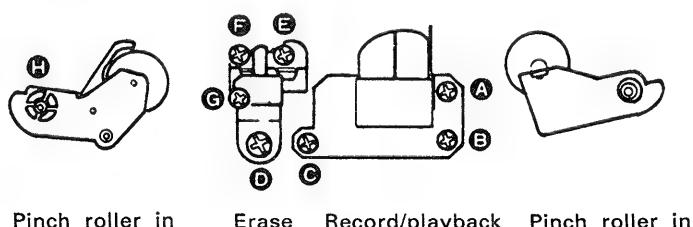
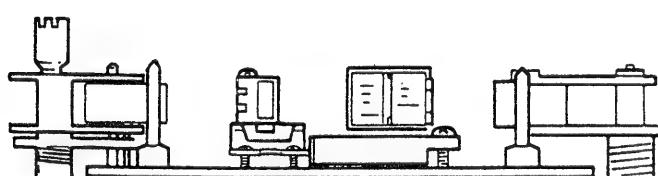


Checking

1. Check that the tape smoothly runs over the entire tape pass without curling or snaking.
2. After the adjustments, apply the locking compound to the screws adjusted (apply the compound to the screw **C** only after the final azimuth adjustments are completed).

Adjustment Location:

The following views relate to those in the mirror cassette (upper) and MD viewed from your side (lower).



Pinch roller in the S side Erase heads Record/playback heads Pinch roller in the T side

SECTION 4

ELECTRICAL ADJUSTMENTS

• Refer to page 25 for Adjustment Location.

1. Adjust the following in the order of listing. (Adjust the recording system after completion of adjusting the playback system, in general.)
2. Adjustments and measurements should be performed for each channel unless otherwise noted.
3. For simultaneous recording/playback, input a signal into the line and set the equipment to recording state to change the monitor to the tape, immediately playback the recorded signal and issue it from the line output.

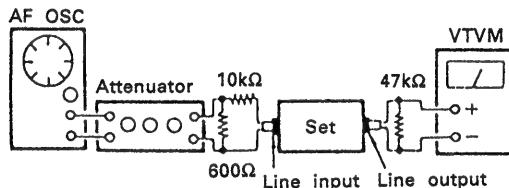
• Switch position

DOLBY NR	OFF
MPX FILTER	OFF
TIMER	OFF
MONITOR	TAPE
HX PRO	OFF
CALIBRATION	OFF
CD DIRECT	OFF
BIAS	CENTER CLICK
REC LEVEL	CENTER CLICK
BALANCE	CENTER CLICK

• Specified recording position

Adjust knobs REC LEVEL (RV591) and BALANCE (RV592) so that the following specified input/output signal level are obtained.

Recording state



Specified input level

Input terminal	LINE IN
Signal source impedance	10kΩ
Input signal level	0.25V (-10dB)

Specified output level

Output terminal	LINE OUT
Load impedance	47kΩ
Output signal level	0.44V (-5dB)

Torque Adjustment

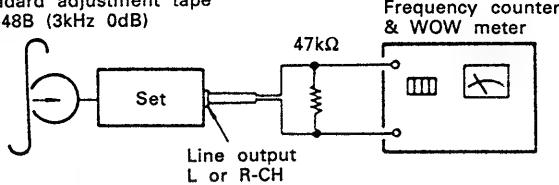
1. Set the torque measuring tape CQ-102C and set the equipment to playback state. Adjust RV801 so that the torque meter indicates 40 ± 3 g.cm.
2. After the completion of the adjustments, measure back tension and FF/REW torques and check that the following specifications are satisfied.

Torque	Torque meter	Meter reading
FWD	CQ-102C	37 - 43g·cm
FWD back tension	CQ-102C	8 - 10.5g·cm
FF/REW	CQ-201B	70 - 120g·cm

Tape Speeds/Wow Checking

Procedure:

Standard adjustment tape
WS-48B (3kHz 0dB)



1. Playback the top section of the standard tape and measure its output frequency and WOW value.
2. Turn the standard tape upside down, measure the same values and check differences between both measured values. (Difference between the top and the end of the tape)

Adjustable limits:

TAPE SPEED deviation : 2,990 - 3,010 Hz or less
TAPE SPEED variation width : 2,990 - 3,010 Hz or less
WOW (WRMS) : 0.04% or less

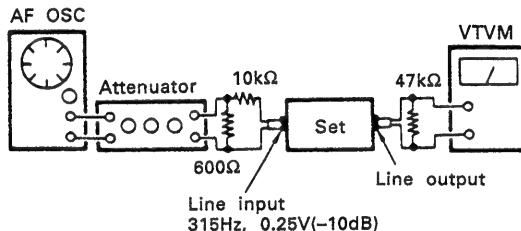
MPX Filter Checking

Conditions:

DOLBY NR switch : OFF
MPX FILTER switch : OFF

Procedure:

1. Mode: Stop state



2. Apply the signal of 315Hz, 0.25V (-10dB) and set REC LEVEL and BALANCE so that the line output level becomes 0.44V (-5dB).
3. Apply the signal of 19kHz, 0.25V (-10dB) and measure the line output level.

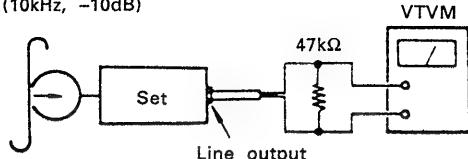
Adjustable limits:

DOLBY NR switch: B or C
MPX FILTER switch: Line output level upon ON
315Hz: Within 0.39 - 0.49V (within -6dB - -4dB)
19kHz: 0.013V (-35dB) or less

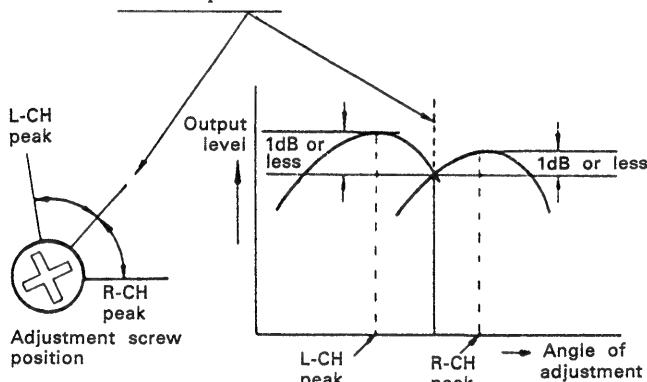
Record/Playback Heads Vertical Adjustment**Procedure:**

1. Mode: Playback

Standard adjustment tape
P-4-A100
(10kHz, -10dB)



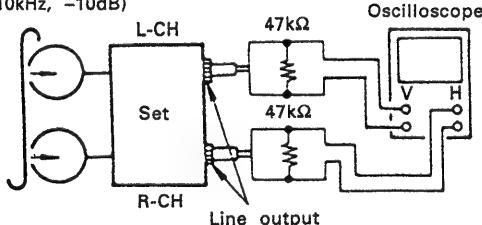
2. Adjust the adjustment screws so that L-CH and R-CH outputs become maximum. If the maximum output points of L-CH and R-CH do not coincide, adjust the screws so that the outputs agree with each other within 1dB from the maximum output value in each channel.



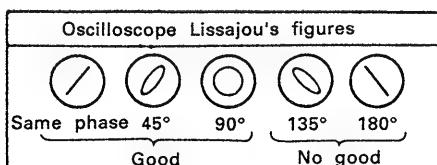
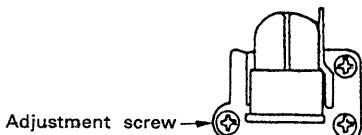
3. Checking of phases

- Playback state -

Standard adjustment tape
P-4-A100
(10kHz, -10dB)

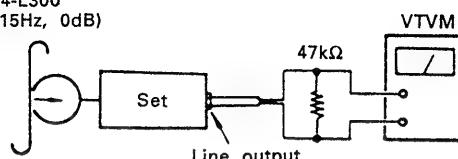


4. Check that the difference between L-CH and R-CH phases is in the same phase - 90°.

**Adjustment Location:****Playback Level Adjustment****Procedure:**

1. Playback state

Standard adjustment tape
P-4-L300
(315Hz, 0dB)



Adjust RV101 (L-CH) and RV201 (R-CH) to satisfy the following specifications.

Adjustable limits:

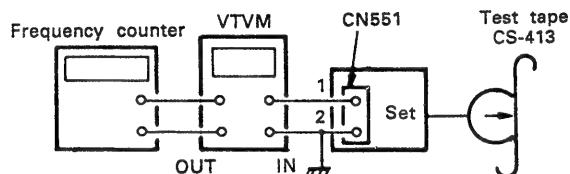
Line output level: 0.42 - 0.46V
(-5.5 - -4.5dB)

Level difference between channels: 0.5dB or less

Check that, by repeating playback and stop, the line output level does not change.

Erase Current Adjustment**Procedure:**

1. Mode: record



2. Adjust RV553 so that VTVM indicates 110mA (erase current 110mA).
3. Check oscillation frequency at that time.

Adjustable limits:

Erase current: 110 ± 5 mA

Oscillation frequency: 160 ± 6 kHz

Bias Consumption Current Adjustment**Precautions:**

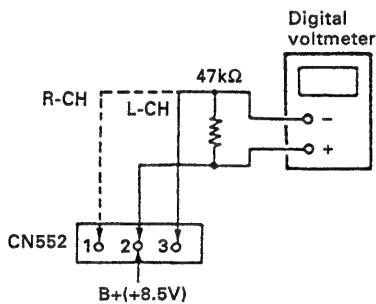
Be sure to adjust bias consumption currents before adjusting recording bias. After completion of adjusting bias consumption currents, again adjust recording bias.

Condition:

HX PRO switch: ON

Procedure:

- Set the semi-fixed resistances RV303 (L-CH) and RV403 (R-CH) for the adjustment of recording bias and RV554 at a mechanical center and set the equipment to recording state without signals.
- Adjust T301 (R-CH) and T401 (L-CH) so that the digital voltmeter indicates a minimum value.

**Adjustable limits:**

120mV or less

(When measured using CS-413 after completion of adjusting the bias)

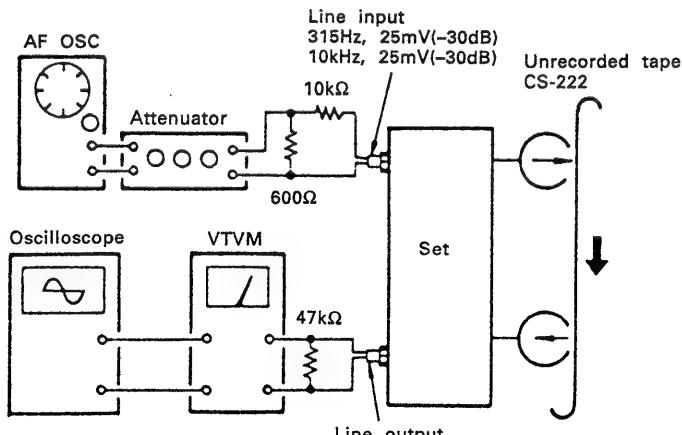
Bias and Recording Level (HX PRO ON) Adjustment**Conditions:**

REC LEVEL knob: Specified recording position (see Page 22)

HX PRO switch: ON

Procedure:

- Simultaneous record/playback state.



- In order that the minimum output becomes the specified output level:

- Adjust RV303 (R-CH) and RV403 (L-CH).Bias adjustment
- Adjust RV301 (R-CH) and RV403 (L-CH).Recording level adjustment

Adjustable limits:

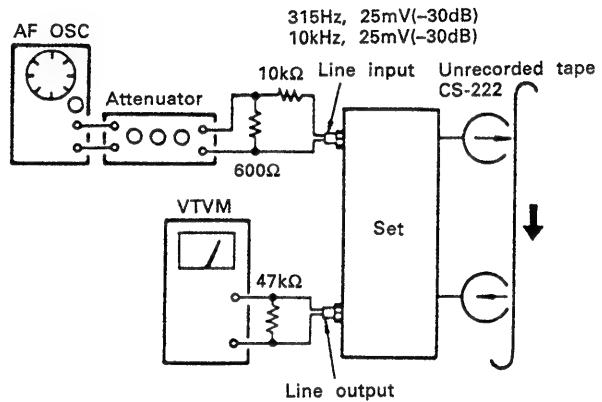
- Difference of 10kHz level from 315Hz level: $\pm 0.3\text{dB}$
- Level of 315Hz: $-25.3\text{dB} \sim -24.7\text{dB}$

Bias Adjustment (HX PRO ON)**Conditions:**

REC LEVEL knob: Specified recording position
HX PRO switch: OFF

Procedure:

- Simultaneous record/playback state



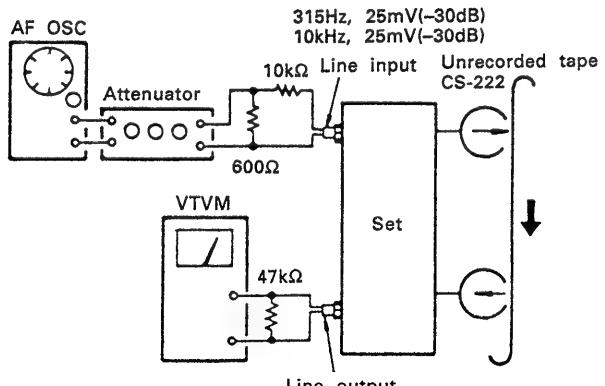
- Adjust RV302 (L-CH) and RV402 (R-CH) so that the difference between playback outputs of 10kHz and 315Hz becomes $0.2\text{dB} \sim 0.8\text{dB}$.

METAL bias Adjustment**Conditions:**

REC LEVEL knob: Specified recording position (see Page 22)
HX PRO switch: OFF

Procedure:

- Simultaneous record/playback state



- Adjust RV554 so that the difference of the playback output of 10kHz R-CH from the playback output of 315Hz becomes $\pm 0.3\text{dB}$.

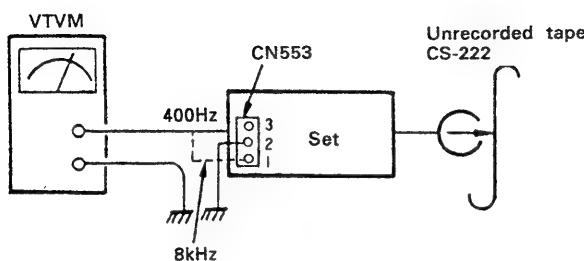
CALIBRATION and Level Meter Adjustment

Condition:

CALIBRATION switch: ON

Procedure (oscillation output level):

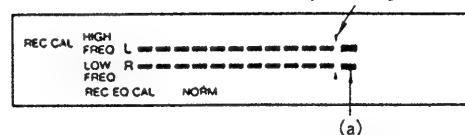
1. Recording state (no line input signals)



Procedure (level meter adjustments):

1. Recording state (no line input signals)
2. Set RV202 rather high and gradually decrease the level. Set the knob at a point where the level (a) 1 point higher than 0dB of the LOW FREQ segment (in the lower line) in the CAL level meter goes out.
3. Adjust RV102 so that HIGH FREQ segments (in the upper line) of the CAL level meter light up completely up to the 0dB position.

HIGH: The level (a) 1 point higher may also blink.

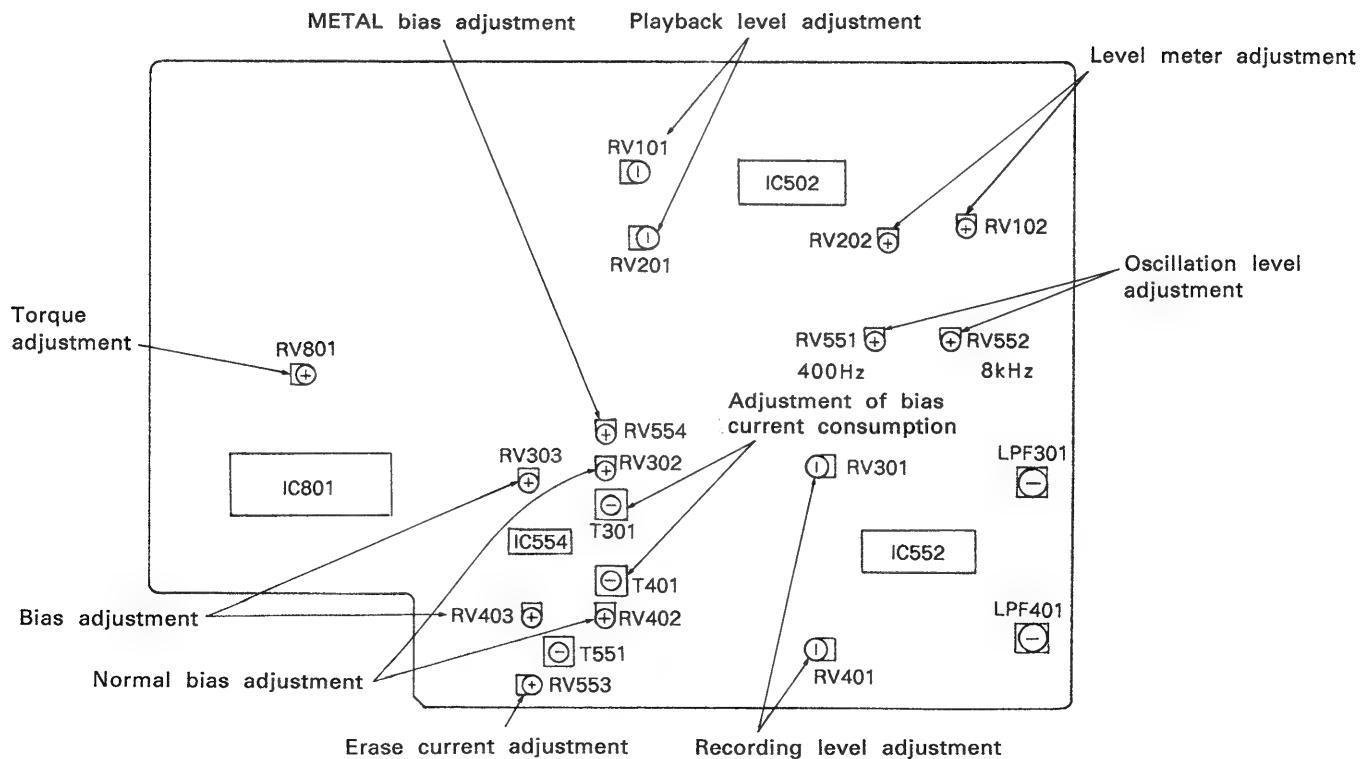


LOW: The level (a) 1 point higher should not blink.

2. Adjust RV551 so that the level of the 400Hz check point becomes 9.5dB - 10.5dB.
3. Adjust RV552 so that the level of the 8kHz check point becomes 9.5dB - 10.5dB.

Adjustment Location:

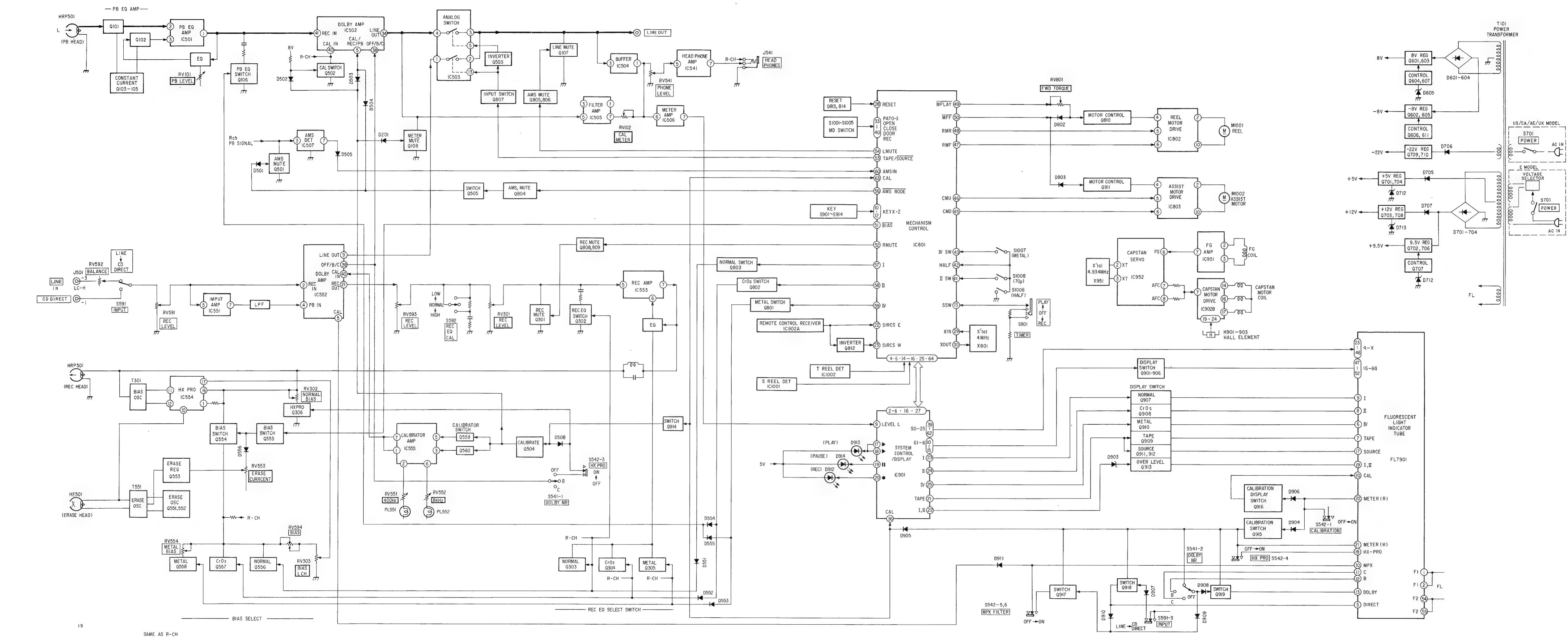
Main (A) PCB - Component side -



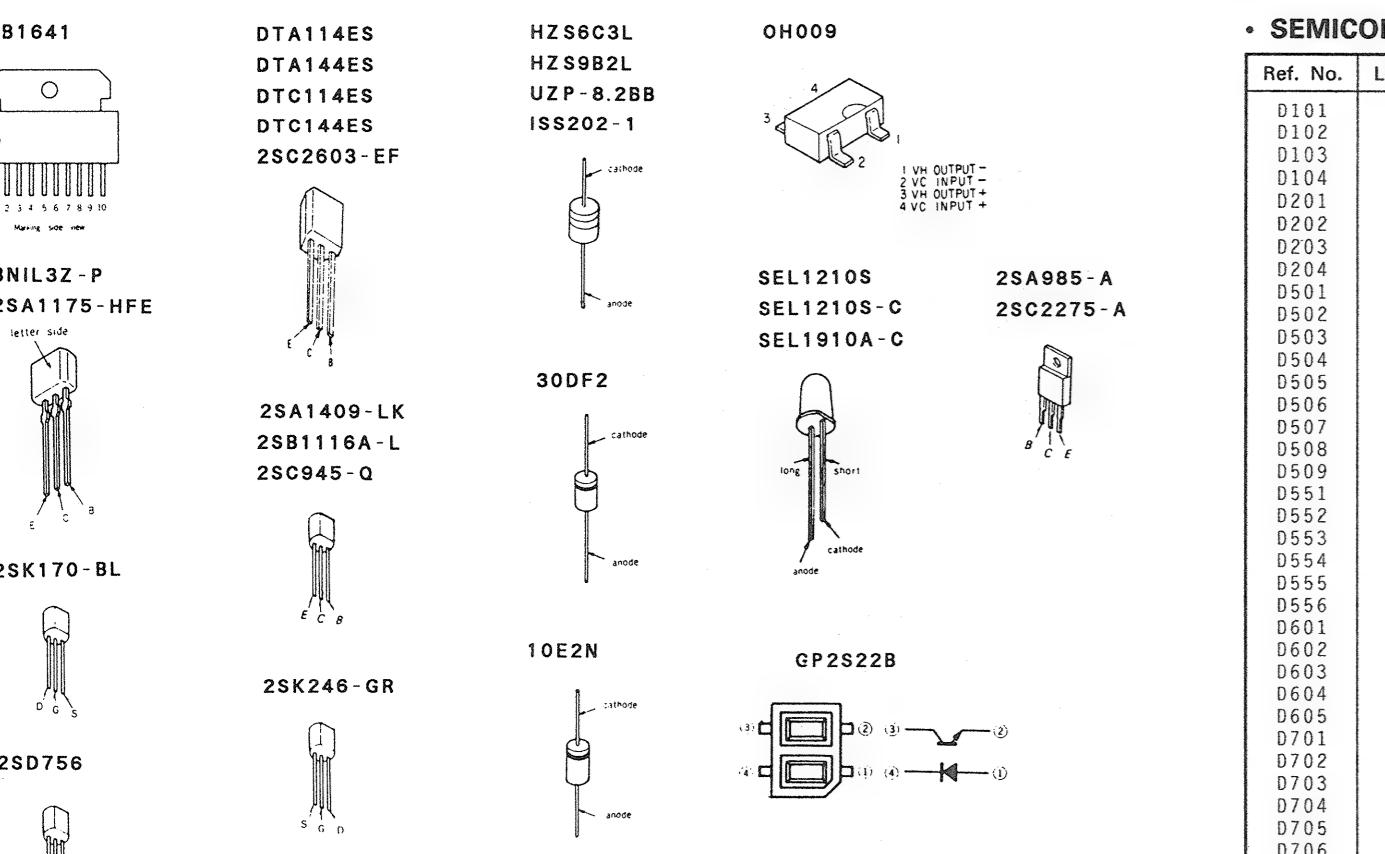
SECTION 5

DIAGRAMS

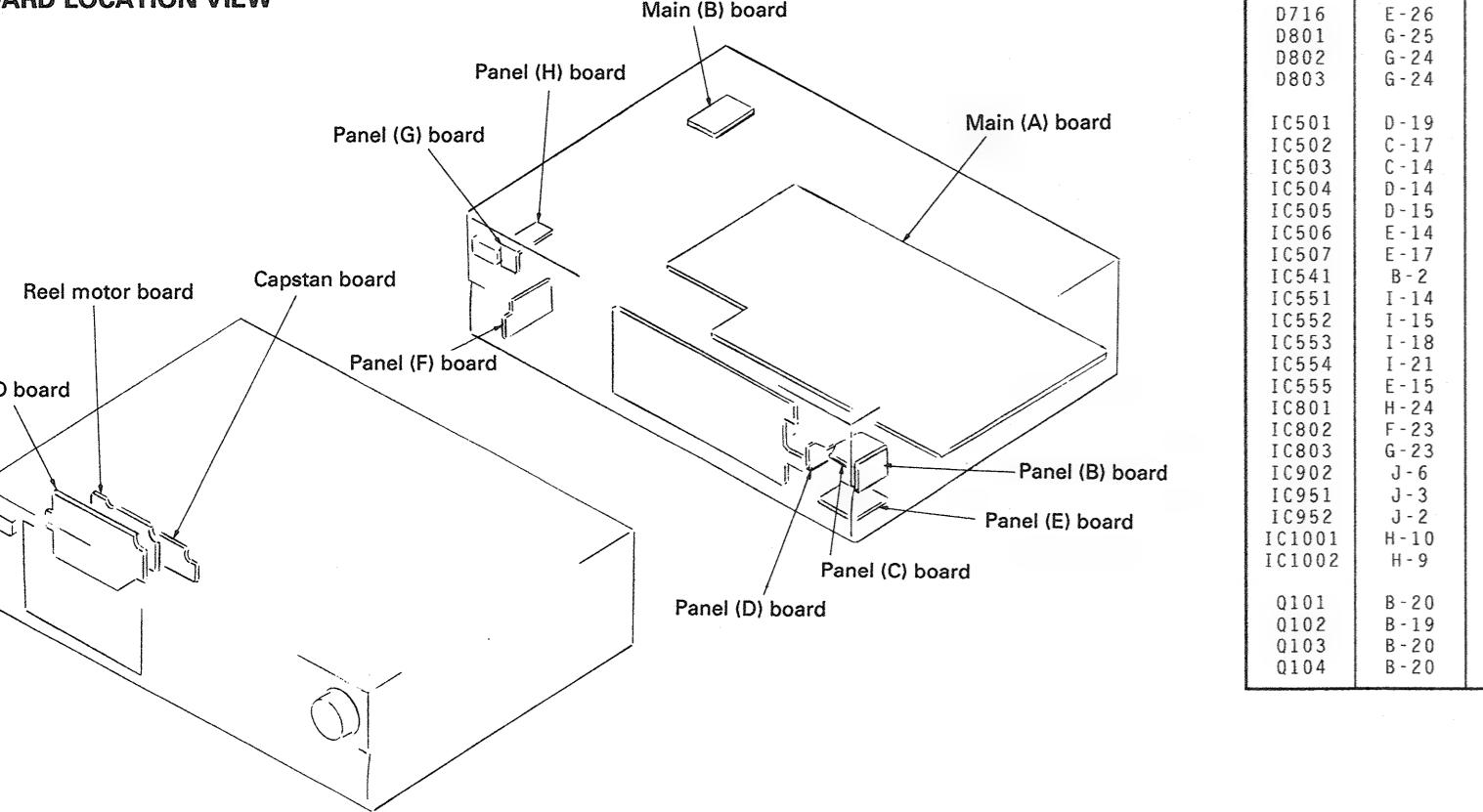
5-1. BLOCK DIAGRAM



5-2. SEMICONDUCTOR LEAD LAYOUTS

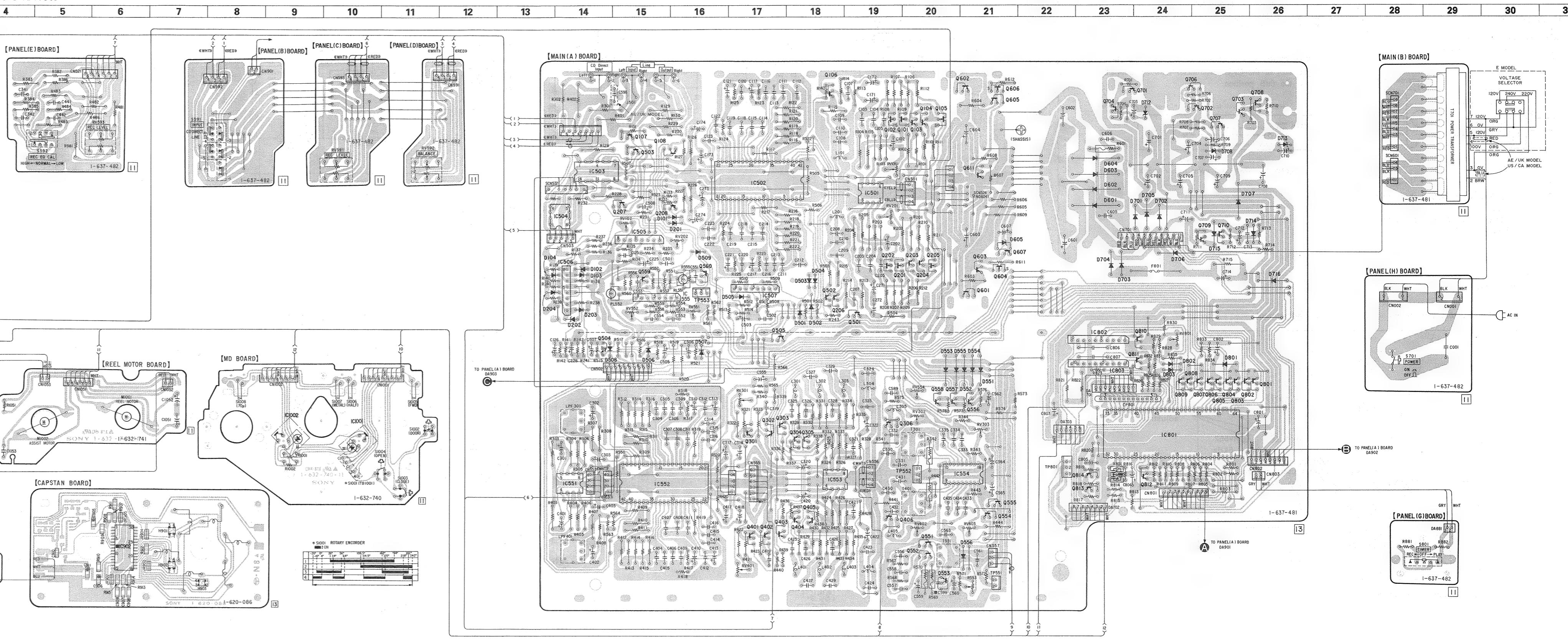


BOARD LOCATION VIEW



• SEMICONDUCTOR LOCATION			
Ref. No.	Location	Ref. No.	Location
D101	D-16	0105	B-20
D102	E-14	0106	B-18
D103	E-14	0107	C-15
D104	E-13	0108	C-15
D201	D-16	0201	E-19
D202	F-14	0202	E-19
D203	F-14	0203	E-20
D204	E-13	0204	E-20
D501	F-18	0205	E-20
D502	F-18	0206	F-18
D503	E-18	0207	D-15
D504	E-18	0208	D-16
D505	F-17	0301	H-17
D506	F-15	0302	H-17
D507	F-14	0303	H-17
D508	E-16	0304	H-18
D509	E-16	0305	H-18
D551	G-21	0306	H-19
D552	G-21	0401	J-17
D553	G-20	0402	J-17
D554	G-21	0403	J-17
D555	G-20	0404	I-18
D556	J-21	0405	I-18
D601	D-23	0406	I-19
D602	D-23	0501	F-19
D603	C-23	0502	F-18
D604	C-23	0503	C-15
D605	E-21	0504	H-14
D701	D-24	0505	F-17
D702	D-24	0551	J-20
D703	E-23	0552	J-20
D704	D-24	0553	I-21
D705	D-24	0554	I-21
D706	E-24	0555	I-21
D707	D-25	0556	G-21
D708	C-25	0557	G-20
D712	B-24	0558	G-20
D713	C-26	0559	E-15
D714	D-26	0560	E-16
D715	D-25	0601	E-21
D716	E-26	0602	B-21
D801	E-25	0603	E-21
D802	G-24	0604	B-21
D803	G-24	0605	B-21
IC501	D-19	0607	E-21
IC502	C-17	0611	B-23
IC503	C-14	0701	B-23
IC504	D-14	0702	B-24
IC505	D-15	0703	B-25
IC506	E-14	0704	B-23
IC507	E-17	0706	B-24
IC541	B-2	0707	B-25
IC562	I-15	0708	B-25
IC553	I-18	0710	D-25
IC564	I-21	0801	G-26
IC554	E-15	0802	G-25
IC555	E-15	0803	G-25
IC801	H-24	0804	G-25
IC802	F-23	0804	G-25
IC803	G-23	0805	G-25
IC902	J-6	0806	G-25
IC951	J-3	0807	G-25
IC952	J-2	0808	G-24
IC1001	H-10	0809	G-24
IC1002	H-9	0810	F-24
Q101	B-20	0811	G-24
Q102	B-19	0812	I-24
Q103	B-20	0813	I-23
Q104	B-20	0814	I-23

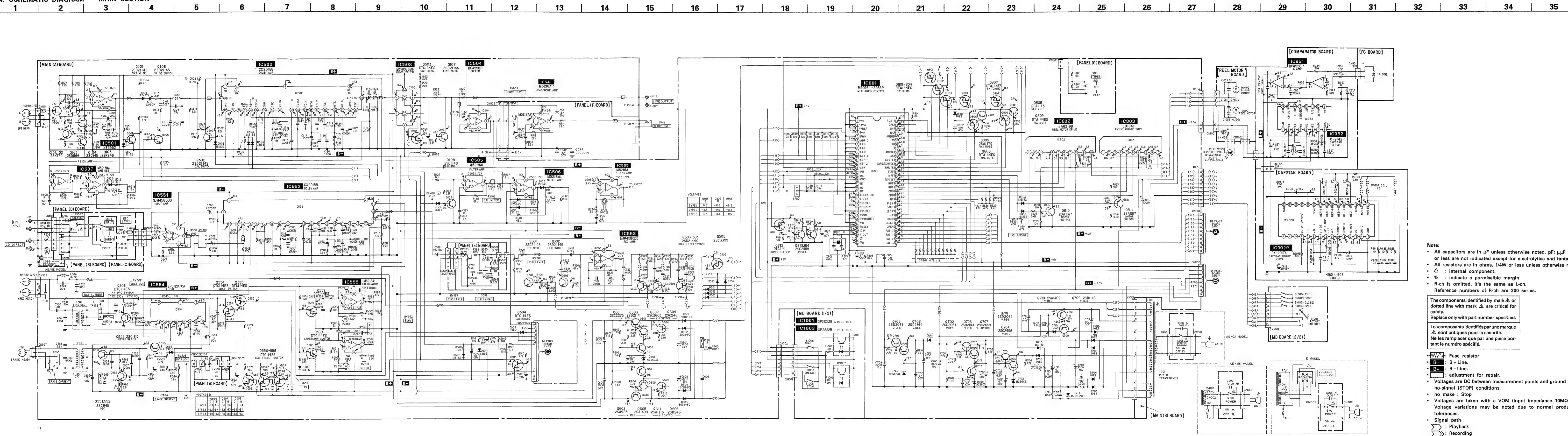
5-3. PRINTED WIRING BOARD - MAIN SECTION -



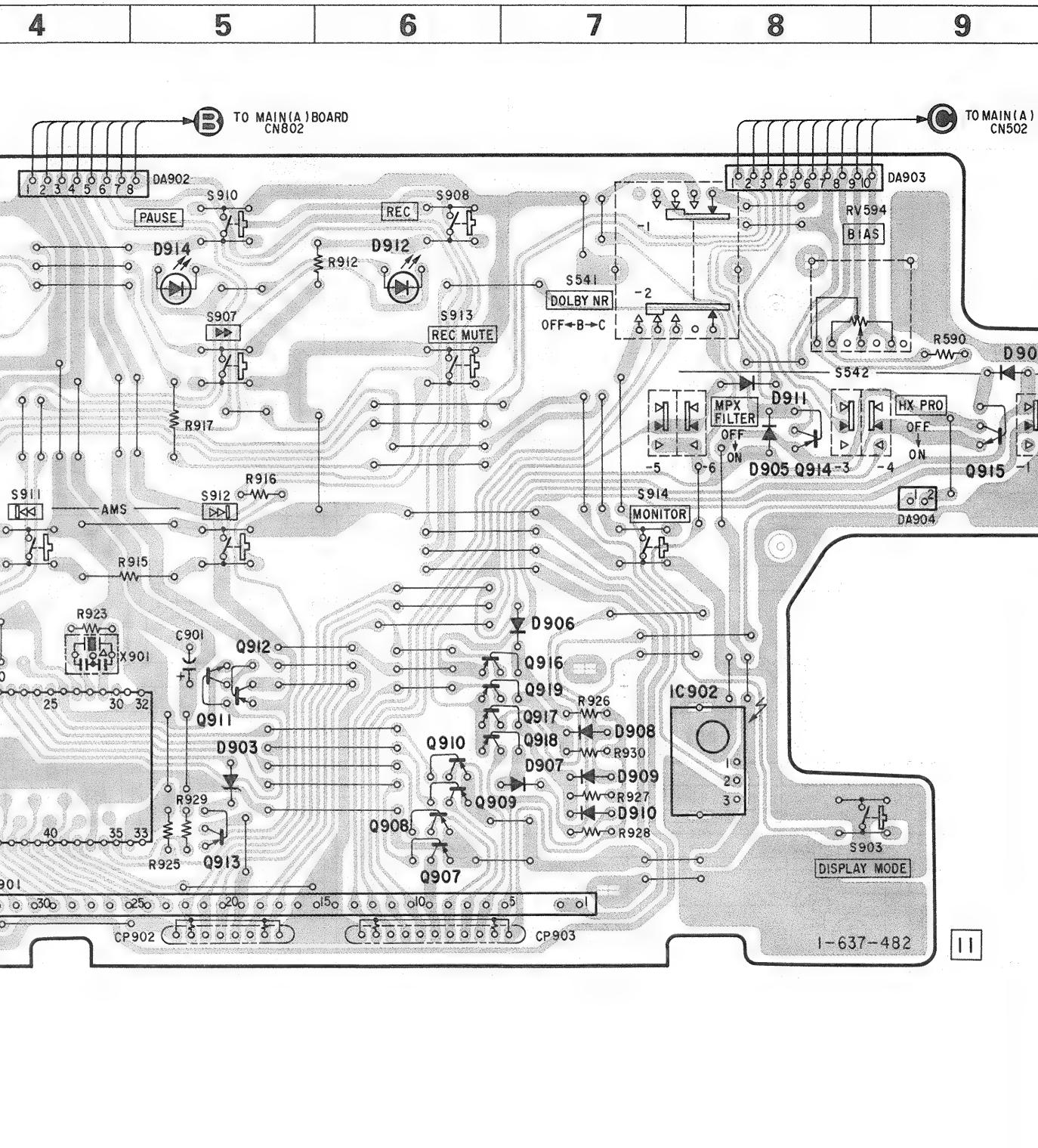
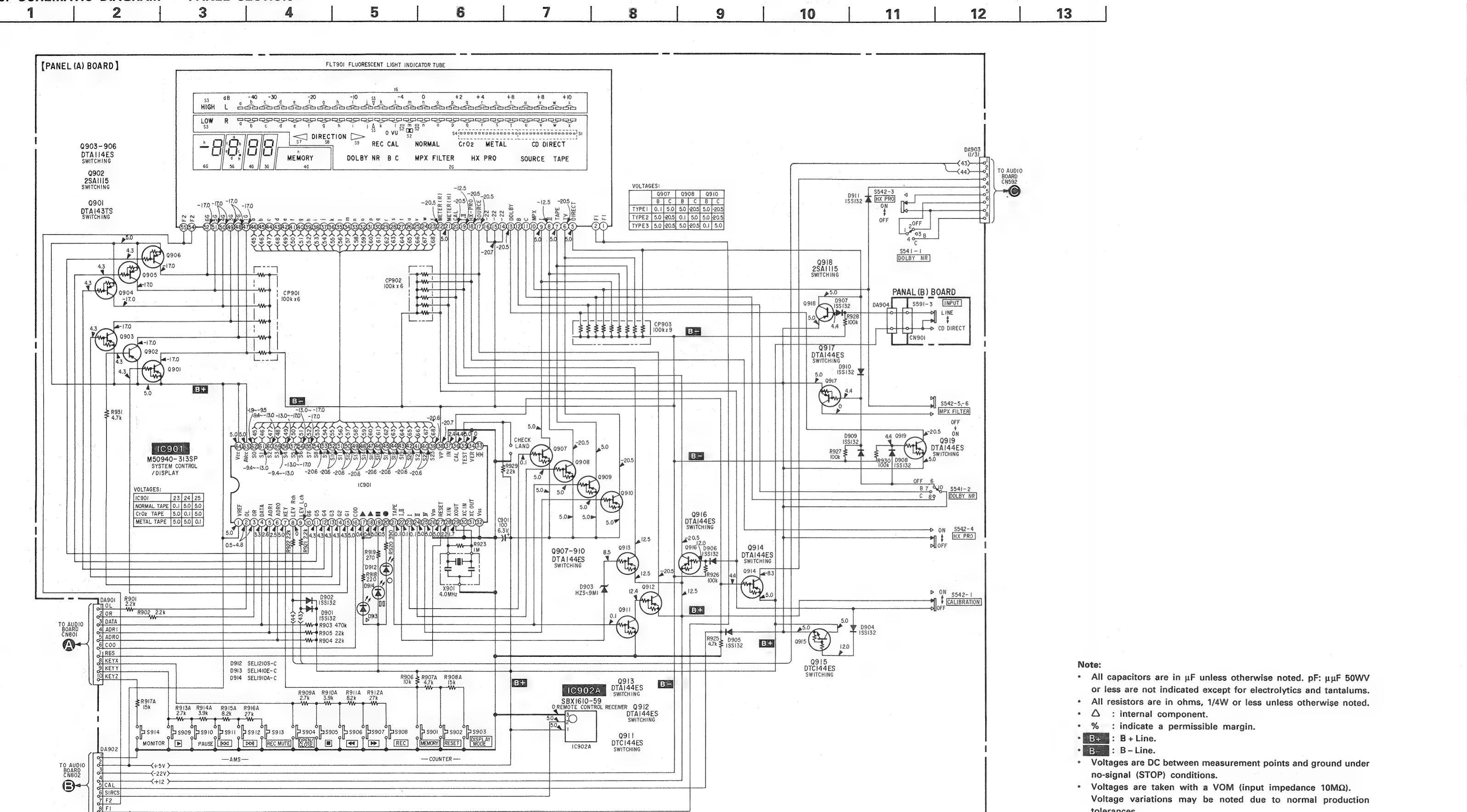
Note:

- o : indicated a lead wire mounted on the component side.
- : parts mounted on the conductor side.

5-4. SCHEMATIC DIAGRAM - MAIN SECTION -



5. SCHEMATIC DIAGRAM - PANEL SECTION -

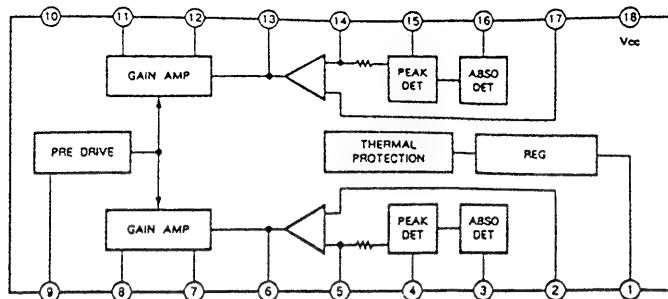


- Note:** •— indicated a lead wire mounted on the component.

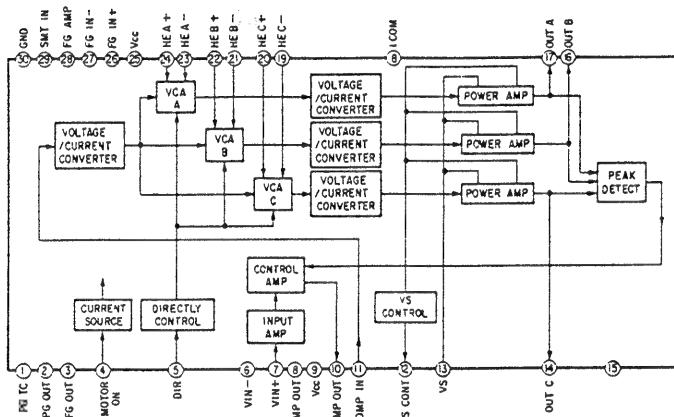
• SEMICONDUCTOR LOCATION	
Ref. No.	Location
D901	C - 3
D902	C - 3
D903	D - 5
D904	B - 9
D905	C - 8
D906	D - 7
D907	D - 7
D908	D - 7
D909	D - 7
D910	E - 7
D911	B - 8
D912	B - 6
D913	C - 3
D914	B - 5
IC901	D - 3
IC902	D - 8
Q901	E - 2
Q902	E - 2
Q903	D - 2
Q904	D - 2
Q905	D - 2
Q906	D - 2
Q907	E - 6
Q908	E - 6
Q909	E - 6
Q910	D - 6
Q911	D - 5
Q912	D - 5
Q913	D - 5
Q914	C - 8
Q915	C - 9
Q916	D - 7
Q917	D - 7
Q918	D - 7
Q919	D - 7

5-7. IC BLOCK DIAGRAMS

IC554 μPC1297CA

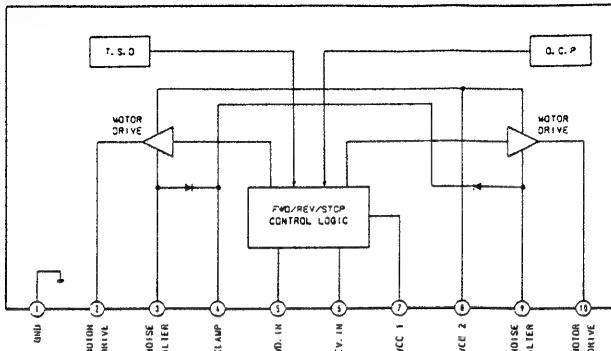


IC902B CX20174

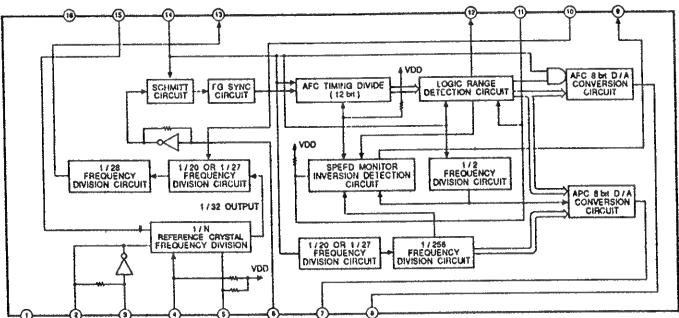


IC803 BA6219B

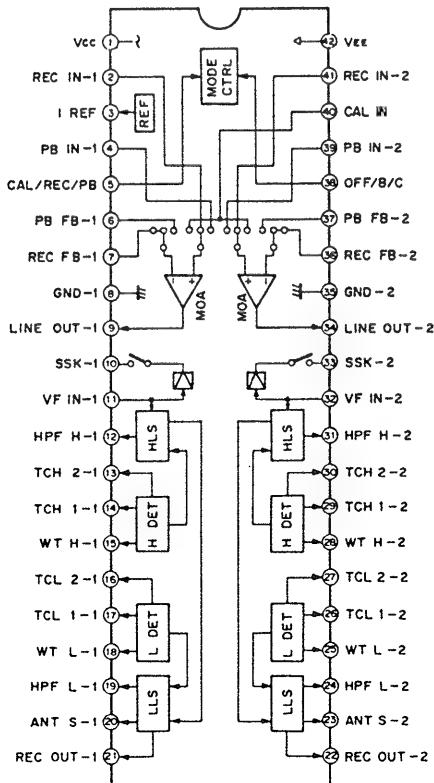
IC804 LB1641



IC952 TC9142P



IC502,552 CX20188



PIN FUNCTION

Pin. No.	Pin. Name	Description
1	Vcc	Positive power terminal
2, 41	REC IN	Recording input terminal
3	I REF	Reference current input terminal
4, 39	PB IN	Playback input terminal
5	CAL/REC/PB	Calibration/recording/playback COS terminal
6, 37	PB FB	Playback feedback terminal
7, 36	REC FB	Recording feedback terminal
8, 35	GND	With 2 power supplies in operation : GND terminal With 1 power supply in operation : Vcc/2 terminal
9, 34	LINE OUT	Line output (decode output) terminal
10, 33	SSK	Spectral skewing switch terminal
11, 32	VF IN	Encode circuit input terminal
12, 31	HPF H	HLS highpass filter terminal
13, 30	TCH 2	HLS detector time constant terminal 2
14, 29	TCH1	HLS detector time constant terminal 1
15, 28	WT H	HLS weighing terminal
16, 27	TCL 2	LLS detector time constant terminal 2
17, 26	TCL 1	LLS detector time constant terminal 1
18, 25	WT L	LLS weighing terminal
19, 24	HPF L	LLS highpass filter terminal
20, 23	ANT S	Anti-saturation terminal
21, 22	REC OUT	Recording output (encode output) terminal
38	OFF/B/C	Dolby NR off/B type/C type COS terminal
40	CAL IN	Calibration input terminal
42	VEE	With 2 power supplies in operation: negative power terminal With 1 power supply in operation: GND terminal

5-8. PIN FUNCTIONS OF IC801 AND IC901

IC801 Master Micon (M50964-226SP)

By entering various switch signals and remote control signals, the mechanical deck is controlled while switching equalizer, mute and other audio signals and transferring data to the display micon.

Pin No.	Pin Name	I/O	Description																																								
1	Vcc	—	Power terminal (+5V)																																								
2	A Vss	—	Power terminal (GND)																																								
3	Vref	I	Reference voltage input (+5V) to the A/D input port																																								
4	DATA	O	Data output (analog) to the display micon (IC901)																																								
5	PWM	—	Not in use with the equipment.																																								
6	ADR0	O	Data output to the display micon (IC901)																																								
7	<u>REC</u>	O																																									
8	<u>PAUSE</u>	O																																									
9	<u>PLAY</u>	O																																									
10	AD7	I	Key switch input (analog). 0V: "▲", 1V: "■", 2V: "◀", 3V: "▶", 4V: "●"																																								
11	AD6	I	Key switch input (analog). 0V: "▶", 1V: "■", 2V: "◀", 3V: "▶", 4V: "○"																																								
12	AD5	I	Key switch input (analog). 0V: "RESET", 1V: "MEMORY", 2V: "DISPLAY MODE"																																								
13	TIMER SW	I	Key switch input (analog). 3V: "REC", 4V: "PLAY", 5V: "OFF"																																								
14	T-PULSE	I	Pulse input to the reel stand sensor in the mechanical deck take-up side.																																								
15	S-PULSE	I	Pulse input to the reel stand sensor in the mechanical deck supply side.																																								
16	COUNT0	I	Negative pulse enters when the counter becomes 0.																																								
17	—	—	Not in use with the equipment.																																								
18	RSTOUT	O																																									
19	S-CLOCK	O																																									
20	S-OUT	O																																									
21	S-IN	I	Not in use with the equipment. (Pull-up)																																								
22	SIRCS-L	I	Positive phase input of SIRCS signal (remote control).																																								
23	SIRCS-E	I	Reverse phase input of SIRCS signal (remote control). SIRCS-L is inverted and entered.																																								
24	POW-OUT	O	Not in use with the equipment. (Open)																																								
25	POWER IN	I	Power down detection input																																								
26	INT1	I	Power down detection input																																								
27	CN Vss	—	Power terminal (GND)																																								
28	<u>RESET</u>	I	Reset input																																								
29	XIN	I	Clock input (4MHz)																																								
30	XOUT	O	Clock output																																								
31	Φ	—	Not in use with the equipment.																																								
32	Vss	—	Power terminal (GND)																																								
33~36	<u>PAT3-PATO</u>	I	Inputs to the rotary encoder for the detection of mechanical deck head base position.																																								
			<table border="1"> <thead> <tr> <th></th> <th>PAUSE</th> <th>AMS</th> <th>FF/REW</th> <th>STOP</th> <th>PLAY</th> <th>EJECT</th> <th></th> </tr> </thead> <tbody> <tr> <td>PAT3</td> <td>L</td> <td>L</td> <td>L</td> <td>L</td> <td>H</td> <td>H</td> <td>H</td> </tr> <tr> <td>PAT2</td> <td>L</td> <td>L</td> <td>H</td> <td>H</td> <td>L</td> <td>L</td> <td>H</td> </tr> <tr> <td>PAT1</td> <td>L</td> <td>H</td> <td>L</td> <td>H</td> <td>L</td> <td>H</td> <td>L</td> </tr> <tr> <td>PAT0</td> <td>L</td> <td>H</td> <td>H</td> <td>L</td> <td>L</td> <td>L</td> <td>L</td> </tr> </tbody> </table>		PAUSE	AMS	FF/REW	STOP	PLAY	EJECT		PAT3	L	L	L	L	H	H	H	PAT2	L	L	H	H	L	L	H	PAT1	L	H	L	H	L	H	L	PAT0	L	H	H	L	L	L	L
	PAUSE	AMS	FF/REW	STOP	PLAY	EJECT																																					
PAT3	L	L	L	L	H	H	H																																				
PAT2	L	L	H	H	L	L	H																																				
PAT1	L	H	L	H	L	H	L																																				
PAT0	L	H	H	L	L	L	L																																				
37	OPEN SW	I	Input to the mechanical deck OPEN switch (S1004). "L": When the cassette holder completely opens.																																								
38	CLOSE SW	I	Input to the mechanical deck CLOSE switch (S1003). "L": When the cassette holder completely closed.																																								
39	DOOR SW	I	Input to the mechanical deck DOOR switch (S1002). "L": When the cassette holder is driven from open to close states.																																								
40	REC SW	I	Input to the mechanical deck REC switch (S1001). "H": When REC claw is broken.																																								

Pin No.	Pin Name	I/O	Description																			
41	<u>70μ SW</u>	I	Input to the mechanical deck 70μ switch (S1008). "H": 70μS, "L": 120 μS (time constant of playback EQ)																			
42	<u>HALF SW</u>	I	Input to the mechanical deck HALF switch (S1006). "L": When a tape is mounted																			
43	<u>METAL SW</u>	I	Input to the mechanical deck METAL switch (S1007). "H": METAL tape, "L": NORMAL or CrO2 tape																			
44	—	—	Not in use with the equipment.																			
45	<u>CAM UP</u>	O	Output of the mechanical deck head base UP.																			
46	<u>CAM DOWN</u>	O	Output of the mechanical deck head base DOWN.																			
			<table border="1"> <tr> <td></td><td>STOP</td><td>DOWN</td><td>UP</td><td>STOP</td></tr> <tr> <td><u>CAM UP</u></td><td>L</td><td>H</td><td>L</td><td>H</td></tr> <tr> <td><u>CAM DOWN</u></td><td>L</td><td>L</td><td>H</td><td>H</td></tr> </table>						STOP	DOWN	UP	STOP	<u>CAM UP</u>	L	H	L	H	<u>CAM DOWN</u>	L	L	H	H
	STOP	DOWN	UP	STOP																		
<u>CAM UP</u>	L	H	L	H																		
<u>CAM DOWN</u>	L	L	H	H																		
47	<u>M-FWD</u>	O	The reel motor rotated forwardly.																			
48	<u>M-REV</u>	O	The reel motor rotated Reversely.																			
			<table border="1"> <tr> <td></td><td>STOP</td><td>FWD/ CLOSE</td><td>REV/ OPEN</td><td>BRAKE</td></tr> <tr> <td><u>M-FWD</u></td><td>L</td><td>L</td><td>H</td><td>H</td></tr> <tr> <td><u>M-REV</u></td><td>L</td><td>H</td><td>L</td><td>H</td></tr> </table>						STOP	FWD/ CLOSE	REV/ OPEN	BRAKE	<u>M-FWD</u>	L	L	H	H	<u>M-REV</u>	L	H	L	H
	STOP	FWD/ CLOSE	REV/ OPEN	BRAKE																		
<u>M-FWD</u>	L	L	H	H																		
<u>M-REV</u>	L	H	L	H																		
49	<u>M-PLAY</u>	O	"L" When the reel motor is rotated at the PLAY speed.																			
50	<u>M-FAST</u>	O	"L" When the reel motor is rotated at the FF/REW speed.																			
51	<u>BIAS</u>	O	Bias oscillation control output. "L": Oscillation, "H": OFF																			
52	<u>REC MUTE</u>	O	REC mute control output. "H": Mute																			
53	<u>MONITER</u>	O	Monitor switch output. "H": Tape, "L": Source																			
54	<u>LINE MUTE</u>	O	Line mute control output. "H": Mute																			
55	—	—	Not in use with the equipment (Connect to <u>AMS MODE</u>).																			
56	<u>AMS MODE</u>	O	Output of the AMS switch. It becomes "L" in AMS.																			
57	<u>TYPE I</u>	O	REC equalizer switching output. With NORMAL tape: "L"																			
58	<u>TYPE II</u>	O	REC equalizer switching output. With CrO2 tape: "L"																			
59	<u>TYPE IV</u>	O	REC equalizer switching output. With METAL tape: "L"																			
60	<u>AMS SIG</u>	I	AMS signal input. No music: "L," with music: "H"																			
61	<u>SOURCE SW</u>	I	} Not in use with the equipment (Connect to +5V).																			
62	<u>TAPE SW</u>	I																				
63	<u>CAL SW</u>	I	Input to the calibration switch (S602). "L": CAL mode, "H": Normal mode																			
64	<u>ADDR1</u>	O	Data output to the display micon (IC901)																			

IC 901 Display Micon (M50940-313SP)

The captioned micon controls the indications of the 24 segment level meter, counter, etc. according to the instruction of the master micon IC801).

Pin No.	Pin Name	I/O	Description
1	Vref	I	A/D input port reference voltage input (+ 5V)
2	ϕL	I	Reel base sensor pulse input in the supply side of the mechanical deck
3	ϕR	I	Reel base sensor pulse input in the take up side of the mechanical deck
4	DATA	I	Data input (analog) from the master micon (IC801)
5, 6	ADR1-ADR0	I	Data input (analog) from the master micon (IC801)
7	KEY	I	Key switch input (analog) 0V : MEMORY, 1.6V : RESET, 3.1V : DISPLAY
8	LEVEL L	I	Level meter Lch input (analog) from the meter amplifier (IC514)
9	LEVEL R	I	Level meter Rch input (analog) from the meter amplifier (IC514)
10-15	GRID6-GRID1	O	FL tube grid output
16	C00	O	Issues negative pulse when the counter becomes 00.
17	PLAY	O	PLAY LED output. Upon "L" it lights up
18	PLAY	O	PLAY LED output. Upon "L" it lights up
19	PAUSE	O	PAUSE LED output. Upon "L" it lights up
20	REC	O	REC LED output. Upon "L" it lights up
21	TAPE	O	FL tube segment output (L: TAPE H: SOURCE indication)
22	OVER LEVEL	O	FL tube segment output ("OVER LEVEL" indication)
23	TYPE I	O	FL tube segment output ("TYPE I" indication)
24	TYPE II	O	FL tube segment output ("TYPE II" indication)
25	TYPE IV	O	FL tube segment output ("TYPE IV" indication)
26	CNVss	-	Power terminal (GND)
27	RESET	I	Reset input
28	XIN	I	Clock input (4 MHz)
29	XOUT	O	Clock output
30	XCIN	-	Not in use with the equipment. (always "L")
31	XCOUT	-	Not in use with the equipment.
32	Vss	-	Power terminal (GND)
33	\emptyset	O	Not in use with the equipment.
34	VER	I	Version changeover input (always "L")
35	TEST	I	Test mode input Upon "L" all meters light up
36	CAL	I	Calibration switch (S602) input Upon "L" CAL mode, Upon "H" normal mode
37	IN	I	Not in use with the equipment.
38	VP	I	Power terminal (-22V) to pull down FL tube segment output
39-62	S23-S0	O	FL tube segment output (meter, counter indication)
63	AVcc	-	Power terminal (+ 5V)
64	Vcc	-	Power terminal (+ 5V)

SECTION 6

EXPLODED VIEW

NOTE:

- XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts Example:

KNOB,BALANCE(WHITE)...(RED)
 ↑ ↑
 Parts color Cabinet's color

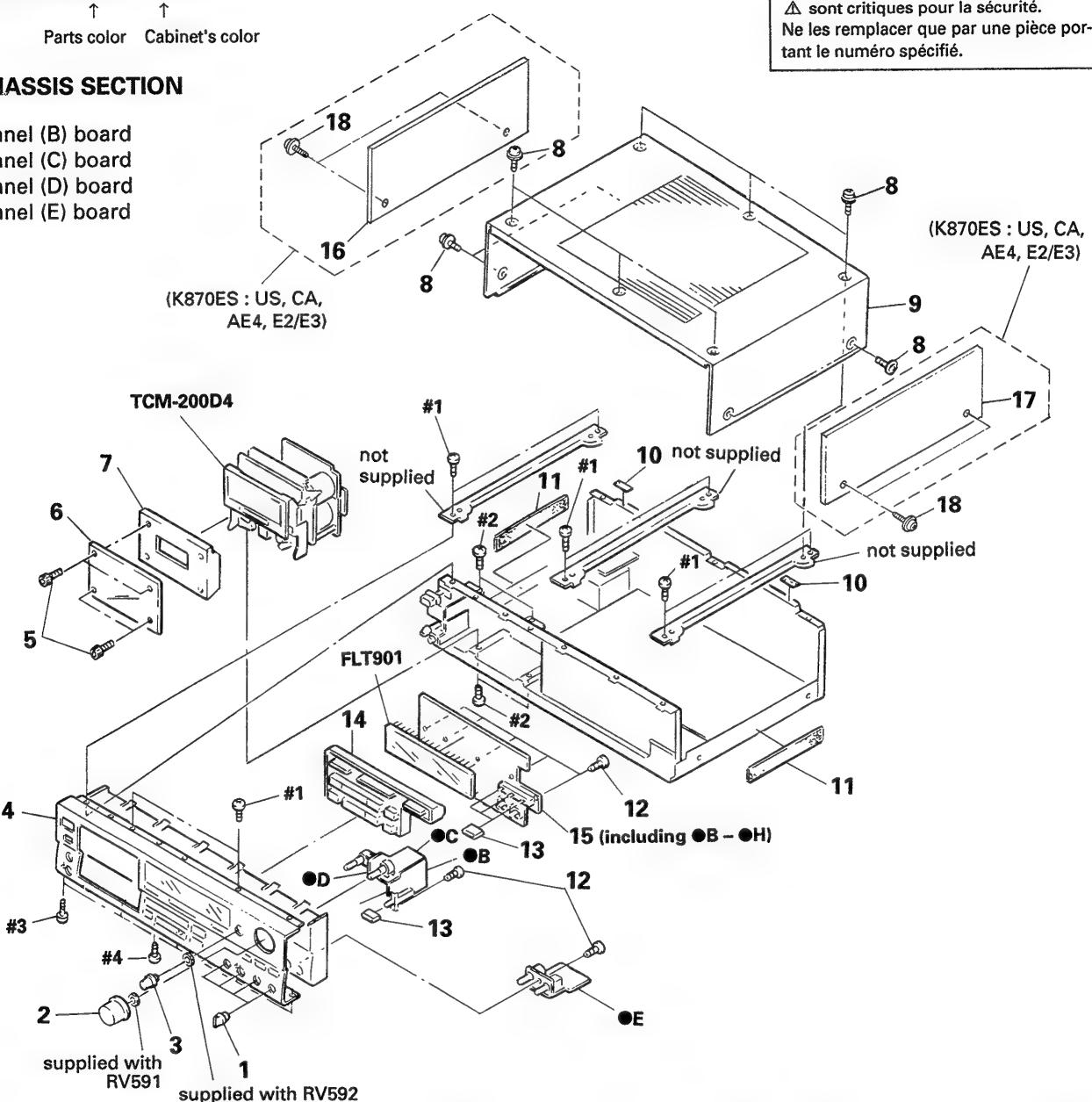
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

(1) CHASSIS SECTION

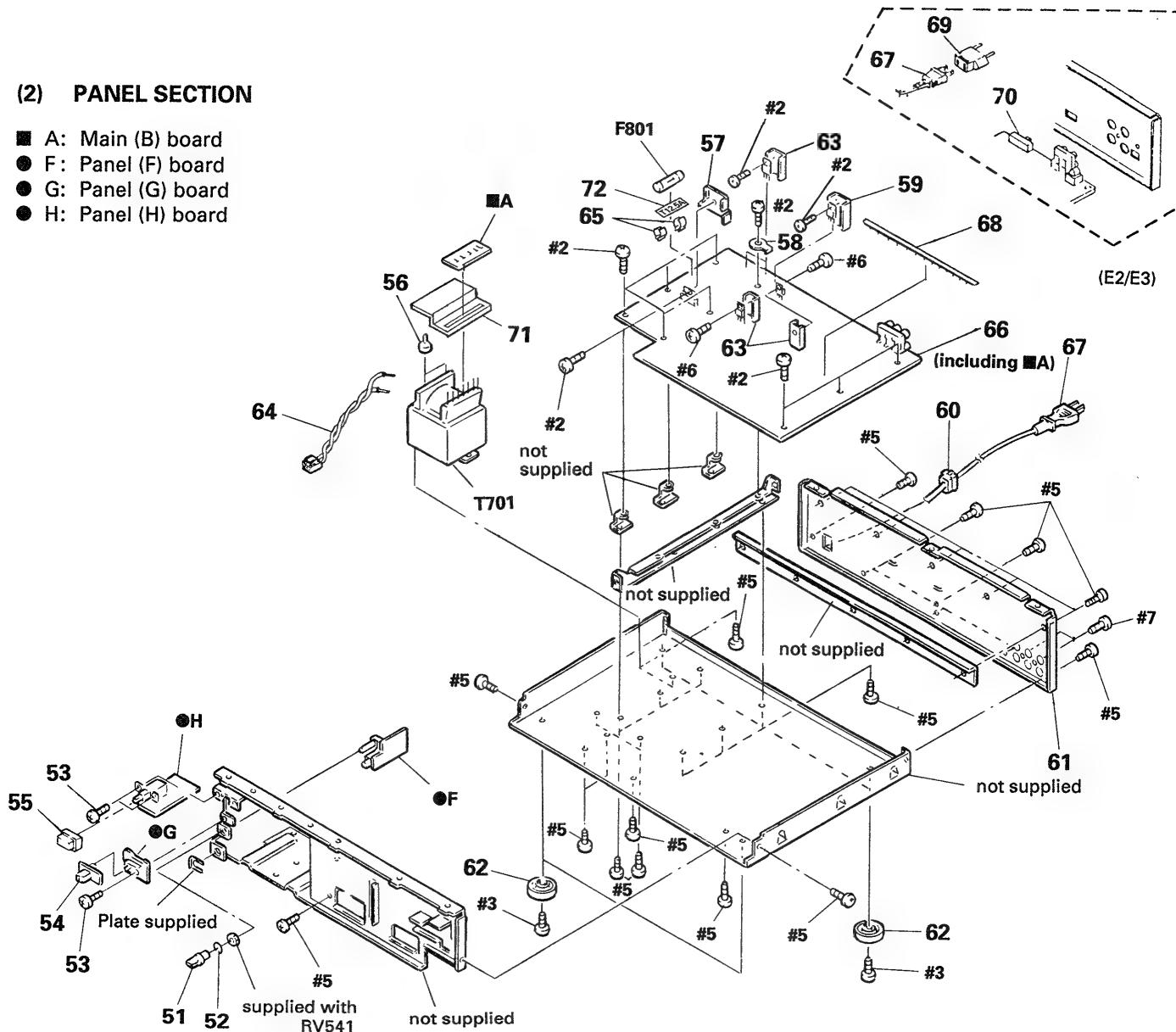
- B: Panel (B) board
- C: Panel (C) board
- D: Panel (D) board
- E: Panel (E) board



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	X-3362-818-1	KNOB (DIA. 12) ASSY (B), SQUARE		9	* 3-364-366-01	CASE	
2	X-3362-289-1	KNOB (VOL) ASSY		10	3-645-258-00	CLOTH, GUIDE, C	
3	3-364-173-01	KNOB (BAL)		11	9-911-844-XX	CUSHION (50X20)	
4	A-2003-813-A	PANEL ASSY, FRONT (K870ES; US, CA, UK)		12	4-928-635-01	SCREW, +BV (2.6X8) TAPPING	
	A-2003-815-A	PANEL ASSY, FRONT (K870ES; AE4)		13	3-364-165-01	BUTTON (14X5)	
	A-2003-816-A	PANEL ASSY, FRONT (K870ES; E2/E3)					
	A-2003-681-A	PANEL ASSY, FRONT (K222ESL; E2/E3)		14	X-3362-290-1	BUTTON (BLOCK) ASSY	
5	3-356-942-01	SCREW (2.6X6), TAPPING		15	* A-2006-551-A	PANEL BOARD, COMPLETE	
6	3-364-177-11	WINDOW (CASSETTE) (K870ES)		16	X-3340-188-1	PANEL(R) ASSY, SIDE	(K870ES; US, CA, AE4, E2/E3)
	3-364-177-01	WINDOW (CASSETTE) (K222ESL)		17	X-3340-187-1	PANEL(L) ASSY, SIDE	(K870ES; US, CA, AE4, E2/E3)
7	3-356-923-01	LID, CASSETTE		18	4-933-446-01	SCREW (SIDE PANEL)	
8	3-704-366-01	SCREW (CASE) (M3X8)					(K870ES; US, CA, AE4, E2/E3)

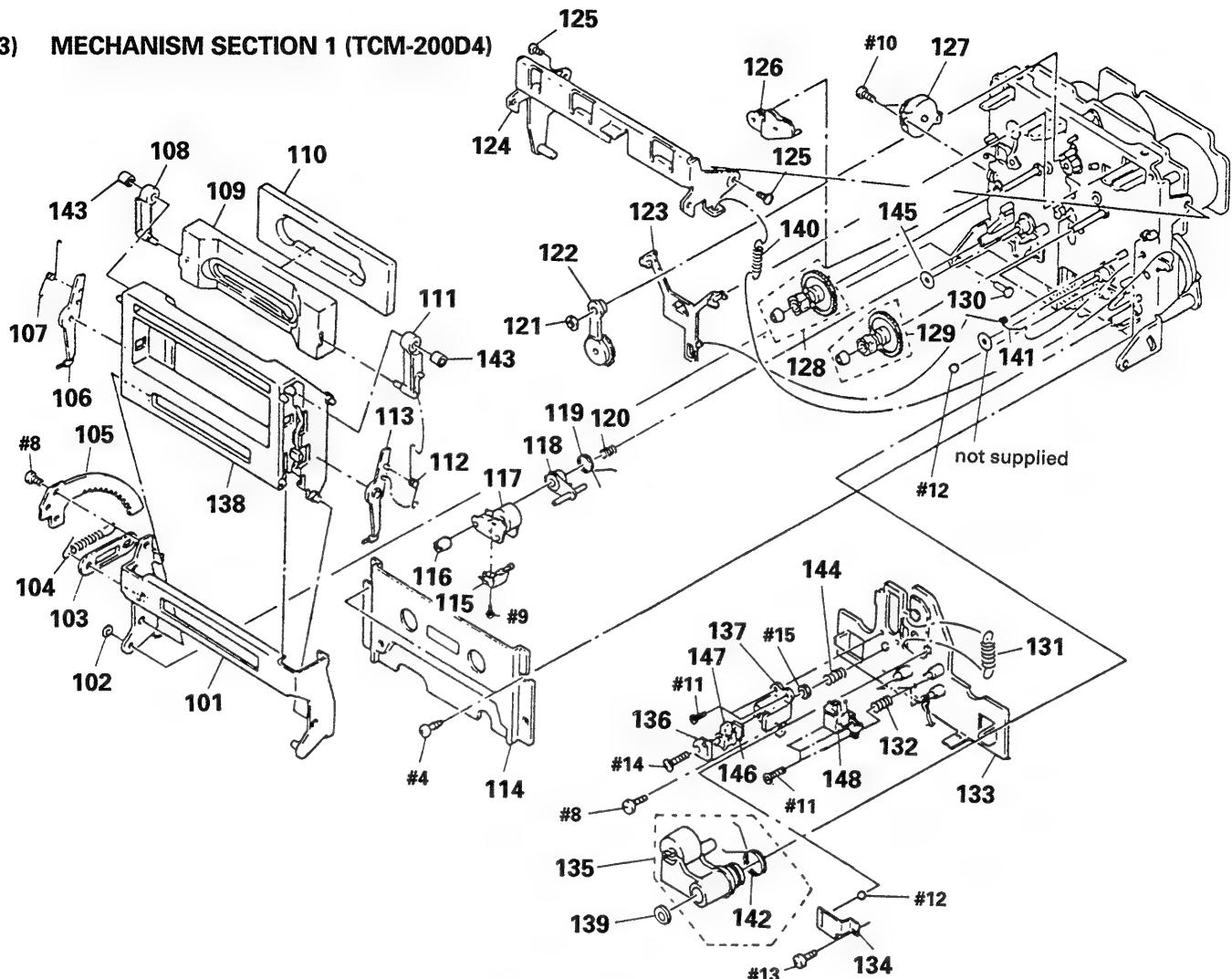
(2) PANEL SECTION

- A: Main (B) board
- F: Panel (F) board
- G: Panel (G) board
- H: Panel (H) board



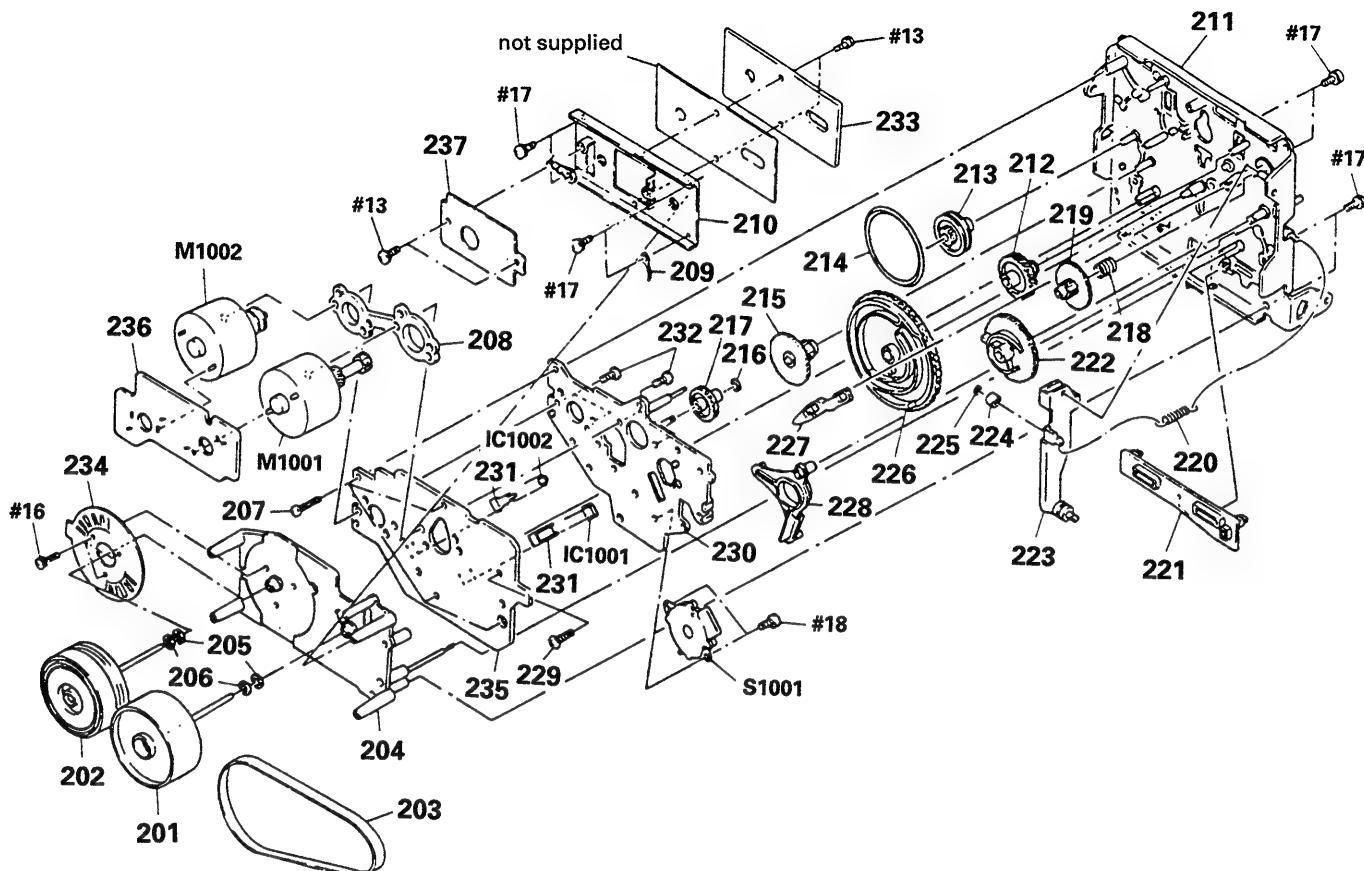
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
51	3-354-931-01	KNOB (DIA. 10)		65	* 1-533-213-31	HOLDER, FUSE	
52	3-354-981-01	SPRING (SUS), RING		66	* A-2006-507-A	MAIN BOARD, COMPLETE (K870ES; US, CA, E2/E3 K222ESL; E2/E3)	
53	4-928-635-01	SCREW, +BV (2.6X8) TAPPING			* A-2006-552-A	MAIN BOARD, COMPLET1 (K870E1; UK, AE4)	
54	4-922-518-01	KNOB (TIMER)		67	△ 1-575-975-11	CORD, POWER (K870ES; US, CA)	
55	3-354-912-01	KNOB, POWER			△ 1-575-651-11	CORD, POWER (K870ES; AE4)	
56	* 4-912-962-01	COVER (1P), TERMINAL (K870ES; US, CA, UK, AE4)			△ 1-575-652-11	CORD, POWER (K870ES; UK)	
57	* 3-356-925-01	HEAT SINK			△ 1-575-653-11	CORD, POWER (E2/E3)	
58	4-870-539-00	PLATE, GROUND		68	* 1-560-242-91	BUS BAR 10P	
59	4-902-345-01	HEAT SINK		69	1-569-007-11	ADAPTER, CONVERSION 2P (K222ESL; E2/E3)	
60	* 3-703-244-00	BUSHING (2104), CORD (K870ES; US, CA, UK, AE4)		70	1-570-307-11	SWITCH, VOLTAGE CHANGE (E2/E3)	
	* 3-703-571-11	BUSHING (S) (4516), CORD (E2/E3)		71	* 3-356-961-02	COVER (TRANSFORMER) (E2/E3)	
61	* 3-362-485-11	PANEL, BACK (K870ES; US, CA)		72	3-701-947-12	LABEL (T1.25A), FUSE (K870ES; UK, AE4, E2/E3 K222ESL; E2/E3)	
	* 3-362-485-21	PANEL, BACK (K870ES; UK)		F801	△ 1-532-741-11	FUSE, GLASS TUBE (1.25A) (K870ES; US, CA)	
	* 3-362-485-31	PANEL, BACK (K870ES; AE4)			△ 1-532-285-11	FUSE, TIME-LAG (1.25A) (K870ES; UK, AE4, E2/E3 K222ESL; E2/E3)	
	* 3-362-485-61	PANEL, BACK (K870ES; E2/E3)		T701	△ 1-450-511-11	TRANSFORMER, POWER (K870ES; US, CA)	
	* 3-362-485-71	PANEL, BACK (K222ESL; E2/E3)			△ 1-450-512-11	TRANSFORMER, POWER (K870ES; UK, AE4)	
62	X-3304-944-1	FOOT ASSY			△ 1-450-513-11	TRANSFORMER, POWER (E2/E3)	
63	* 4-880-403-21	HEAT SINK					
64	* 1-590-321-51	LEAD (WITH CONNECTOR)					

(3) MECHANISM SECTION 1 (TCM-200D4)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
101	X-3362-671-1	HOLDER (BG) ASSY, CASSETTE		125	3-356-601-11	SCREW, STEP	
102	3-558-708-11	WASHER, STOPPER		126	X-3356-623-1	LEVER (BT) ASSY	
103	* 3-356-717-01	LEVER (JOINT)		127	3-319-224-31	DAMPER, SMALL	
104	3-356-626-01	SPRING, TENSION		128	X-3356-629-1	GEAR (S) ASSY	
105	3-356-708-01	GEAR (S), EJECT		129	X-3356-627-1	GEAR (T) ASSY	
106	3-356-932-01	LEVER (LA)		130	3-356-710-01	SHAFT (LEFT) (CASSETTE HOLDER)	
107	3-356-927-01	SPRING (LEFT), TORSION		131	3-356-658-01	SPRING (LIMITER H), TENSION	
108	3-356-933-01	LEVER (LB)		132	3-356-659-01	SPRING (RPH), COMPRESSION	
109	3-356-928-01	PLATE (A), ORNAMENTAL		133	* X-3362-199-1	SLIDER (HEAD CHASSIS D) ASSY	
110	* 3-356-929-01	ABSORBENT, VIBRATION		134	3-356-656-01	SPRING (HEAD PC BOARD), LEAF	
111	3-356-931-01	LEVER (RB)		135	X-3356-620-1	LEVER (PINCH LEVER T) ASSY	
112	3-356-926-01	SPRING (RIGHT), TORSION		136	3-318-433-01	SPRING	
113	3-356-930-01	LEVER (RA)		137	* 3-576-977-00	BRACKET, E. HEAD	
114	X-3356-613-1	PLATE ASSY, ORNAMENTAL		138	X-3356-611-1	HOLDER (A) ASSY, CASSETTE	
115	3-564-138-00	GUIDE (S), TAPE		139	3-669-596-00	WASHER (2.3), STOPPER	
116	3-356-652-01	NUT (PINCH LEVER S)		140	3-356-624-01	SPRING, TENSION	
117	X-3356-621-1	LEVER (PINCH LEVER S) ASSY		141	3-356-619-01	SPRING (B), TORSION	
118	3-356-660-01	LEVER (PS)		142	3-356-672-01	SPRING (PINCH LEVER T), TORSION	
119	3-356-661-01	SPRING (PINCH LEVER S), TORSION		143	3-356-946-01	BUSHING	
120	3-356-657-01	SPRING (PS), COMPRESSION		144	3-564-121-00	SPRING, COMPRESSION	
121	3-669-465-00	WASHER (1.5), STOPPER		145	3-356-713-01	WASHER	
122	X-3356-641-1	LEVER (FR2) ASSY		146	* 1-608-268-00	PC BOARD, ERASE HEAD	
123	3-356-614-01	SLIDER (BRAKE)		147	1-543-358-11	HEAD, MAGNETIC (ERASE)	
124	* X-3356-608-1	LEVER (LIFTER) ASSY		148	1-543-684-11	HEAD, MAGNETIC (REC/PB)	

(4) MECHANISM SECTION 2 (TCM-200D4)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
201	X-3362-284-1	FLYWHEEL (S2.3) ASSY		221	3-356-653-01	SLIDER (PAUSE)	
202	X-3356-619-1	FLYWHEEL (DT) ASSY		222	3-356-616-01	GEAR (LOADING CAM)	
203	3-364-600-01	BELT (CAPSTAN)		223	* X-3356-606-1	LEVER (LOADING) ASSY	
204	X-3362-281-1	CHASSIS (D2.3) ASSY		224	3-356-630-01	ROLLER (LOADING)	
205	3-356-705-31	WASHER (CAPSTAN)		225	3-558-708-21	WASHER, STOPPER	
206	3-356-705-21	WASHER (CAPSTAN)		226	3-356-654-01	GEAR (MODE CAM C)	
207	3-355-801-01	SCREW (BTP 2X18)		227	3-356-617-01	LEVER (SELECTION)	
208	* 3-356-628-01	SPACER (MOTOR)		228	3-356-613-01	LEVER (MODE)	
209	* 3-701-822-00	HOLDER, WIRE		229	3-356-707-01	SCREW (+PTPWH 2X25)	
210	* X-3362-282-1	BRACKET (THRUST RETAINER) ASSY		230	* X-3356-616-4	BRACKET (MOTOR D) ASSY	
211	X-3356-622-1	CHASSIS (C) ASSY, MECHANICAL		231	3-356-631-01	HOLDER (SENSOR)	
212	3-356-703-01	GEAR (COMMUNICATION C)		232	3-363-804-01	SCREW (+P 2.6X6.5)	
213	3-356-607-01	PULLEY (MODE)		233	A-2006-154-A	CAPSTAN C. O. C BOARD, COMPLETE	
214	3-356-603-01	BELT (MODE)		234	1-632-779-11	PC BOARD, FG	
215	3-356-606-01	GEAR (MODE)		235	* 1-632-740-11	MD BOARD	
216	3-669-465-00	WASHER (1.5), STOPPER		236	* 1-632-741-11	REAL MOTOR BOARD	
217	3-356-702-01	GEAR (COMMUNICATION B)		237	* 1-632-746-11	COMPARATOR BOARD	
218	3-356-605-01	SPRING, COMPRESSION		M1001	X-3356-638-1	MOTOR (REEL R) ASSY	
219	3-356-609-01	GEAR (LOADING)		M1002	X-3356-604-1	MOTOR (ASSIST) ASSY	
220	3-356-625-01	SPRING, TENSION		S1001	1-466-238-11	ENCODER, ROTARY	

SECTION 8

ELECTRICAL PARTS LIST

CAPSTAN C.O.C

COMPARATOR

NOTE:

The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- **RESISTORS**
All resistors are in ohms
METAL : Metal-film resistor
METAL OXIDE : Metal Oxide-film resistor
F : nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- **SEMICONDUCTORS**
In each case, u : μ , for example :
uA...: μ A..., uPA...: μ PA...,
uPB...: μ PB..., uPC...: μ PC...,
uPD...: μ PD...
- **CAPACITORS**
uF μ F
- **COILS**
uH : μ H

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks				
	A-2006-154-A	CAPSTAN C. O. C BOARD, COMPLETE	*****		*	1-632-746-11	COMPARATOR BOARD				
< CAPACITOR >											

C905	1-124-779-00	ELECT CHIP	10uF	20%	16v	C951	1-136-157-00	FILM	0.022uF	5%	50V
C906	1-135-091-00	TANTALUM CHIP	1uF	20%	16V	C952	1-124-282-00	ELECT	22uF	20%	25V
C907	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V	C953	1-124-478-11	ELECT	100uF	20%	25V
C908	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V	C954	1-124-477-11	ELECT	47uF	20%	25V
C909	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V	C955	1-162-203-31	CERAMIC	15PF	5%	50V
C910	1-163-205-00	CERAMIC CHIP	0.001uF	5%	50V	C956	1-162-203-31	CERAMIC	15PF	5%	50V
C911	1-124-779-00	ELECT CHIP	10uF	20%	16v	C957	1-136-159-00	FILM	0.033uF	5%	50V
< HOLE ELEMENT >											

H901	8-719-403-79	OH009-TW			CN951	* 1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P				
H902	8-719-403-79	OH009-TW			CN952	* 1-564-518-11	PLUG, CONNECTOR 3P				
H903	8-719-403-79	OH009-TW			< CONNECTOR >						

< IC >											

IC902	8-752-017-40	IC CX20174-T1			IC951	8-759-945-58	IC RC4558P				
< RESISTOR >											

R907	1-216-242-00	METAL GLAZE	68K	5%	1/8W	R951	1-249-413-11	CARBON	470	5%	1/4W
R908	1-216-246-00	METAL GLAZE	100K	5%	1/8W	R952	1-249-413-11	CARBON	470	5%	1/4W
R909	1-216-246-00	METAL GLAZE	100K	5%	1/8W	R953	1-247-881-00	CARBON	120K	5%	1/4W
R910	1-216-238-00	METAL GLAZE	47K	5%	1/8W	R954	1-247-881-00	CARBON	120K	5%	1/4W
R911	1-216-182-00	METAL GLAZE	220	5%	1/8W	R955	1-249-429-11	CARBON	10K	5%	1/4W
R912	1-216-182-00	METAL GLAZE	220	5%	1/8W	R956	1-249-417-11	CARBON	1K	5%	1/4W
R913	1-216-150-00	METAL GLAZE	10	5%	1/8W	R957	1-249-417-11	CARBON	1K	5%	1/4W
R914	1-216-150-00	METAL GLAZE	10	5%	1/8W	R958	1-247-891-00	CARBON	330K	5%	1/4W
R915	1-216-150-00	METAL GLAZE	10	5%	1/8W	R959	1-247-901-11	CARBON	820K	5%	1/4W

< RESISTOR >											

< CRYSTAL >											

X951	1-577-615-11	VIBRATOR, CRYSTAL (4.934MHz)			*****						

MD MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
	* 1-632-740-11	MD BOARD	*****	C104	1-107-169-00	MICA	100PF 5% 500V
	3-356-631-01	HOLDER (SENSOR)		C105	1-136-252-00	FILM	0.0015uF 5% 100V
		< CONNECTOR >		C107	1-136-158-00	FILM	0.027uF 5% 50V
CN1001	1-506-615-11	PIN, CONNECTOR 9P		C108	1-107-161-00	MICA	39PF 5% 500V
CN1002	1-564-501-11	PIN, CONNECTOR 8P		C109	1-136-253-11	FILM	0.0018uF 5% 100V
		< IC >		C110	1-136-253-11	FILM	0.0018uF 5% 100V
IC1001	8-749-920-97	IC PHOTO REFLECTOR GP2S22B		C111	1-130-475-00	MYLAR	0.0022uF 5% 50V
IC1002	8-749-920-97	IC PHOTO REFLECTOR GP2S22B		C112	1-130-475-00	MYLAR	0.0022uF 5% 50V
		< RESISTOR >		C113	1-130-478-00	MYLAR	0.0039uF 5% 50V
R1001	1-249-408-11	CARBON 180 5% 1/4W		C114	1-136-173-00	FILM	0.47uF 5% 50V
R1002	1-249-408-11	CARBON 180 5% 1/4W		C115	1-136-167-00	FILM	0.15uF 5% 50V
		< SWITCH >		C116	1-136-155-00	FILM	0.015uF 5% 50V
S1001	1-466-238-11	ENCODER, ROTARY		C117	1-124-903-11	ELECT	1uF 20% 50V
S1002	1-570-953-11	SWITCH, PUSH (1 KEY)		C118	1-136-169-00	FILM	0.22uF 5% 50V
S1003	1-571-958-11	SWITCH, PUSH (1 KEY)		C119	1-136-163-00	FILM	0.068uF 5% 50V
S1004	1-572-126-11	SWITCH, PUSH (1 KEY)		C120	1-136-162-00	FILM	0.056uF 5% 50V
S1005	1-572-125-11	SWITCH, LEAF		C121	1-124-903-11	ELECT	1uF 20% 50V
S1006	1-572-202-11	SWITCH, LEAF		C122	1-130-480-00	MYLAR	0.0056uF 5% 50V
S1007	1-572-125-11	SWITCH, LEAF		C123	1-136-153-00	FILM	0.01uF 5% 50V
S1008	1-572-125-11	SWITCH, LEAF		C125	1-136-165-00	FILM	0.1uF 5% 50V
		< CONNECTOR PIN >		C126	1-123-382-00	ELECT	3.3uF 20% 100V
TB1001	*	1-569-066-11 PIN, CONNECTOR 5P		C171	1-123-357-00	ELECT	22uF 20% 50V
				C172	1-123-357-00	ELECT	22uF 20% 50V
				C173	1-123-357-00	ELECT	22uF 20% 50V
				C174	1-123-357-00	ELECT	22uF 20% 50V
				C202	1-124-122-11	ELECT	100uF 20% 50V
				C203	1-130-893-00	FILM	0.027uF 5% 100V
				C204	1-107-169-00	MICA	100PF 5% 500V
				C205	1-136-252-00	FILM	0.0015uF 5% 100V
				C207	1-136-158-00	FILM	0.027uF 5% 50V
				C208	1-107-161-00	MICA	39PF 5% 500V
				C209	1-136-253-11	FILM	0.0018uF 5% 100V
				C210	1-136-253-11	FILM	0.0018uF 5% 100V
				C211	1-130-475-00	MYLAR	0.0022uF 5% 50V
				C212	1-130-475-00	MYLAR	0.0022uF 5% 50V
				C213	1-130-478-00	MYLAR	0.0039uF 5% 50V
				C214	1-136-173-00	FILM	0.47uF 5% 50V
				C215	1-136-167-00	FILM	0.15uF 5% 50V
				C216	1-136-155-00	FILM	0.015uF 5% 50V
				C217	1-124-903-11	ELECT	1uF 20% 50V
				C218	1-136-169-00	FILM	0.22uF 5% 50V
				C219	1-136-163-00	FILM	0.068uF 5% 50V
				C220	1-136-162-00	FILM	0.056uF 5% 50V
				C221	1-124-903-11	ELECT	1uF 20% 50V
				C222	1-130-480-00	MYLAR	0.0056uF 5% 50V
				C223	1-136-153-00	FILM	0.01uF 5% 50V
				C225	1-124-925-11	ELECT	2.2uF 20% 100V
				C226	1-123-382-00	ELECT	3.3uF 20% 100V
C102	1-124-122-11	ELECT 100uF 20% 50V		C271	1-123-357-00	ELECT	22uF 20% 50V
C103	1-130-893-00	FILM 0.027uF 5% 100V		C272	1-123-357-00	ELECT	22uF 20% 50V

When indicating parts by reference number, please include the board name.

MAIN

Ref. No.	Part No.	Description	Remarks			Ref. No.	Part No.	Description	Remarks		
C273	1-123-357-00	ELECT	22uF	20%	50V	C414	1-136-163-00	FILM	0.068uF	5%	50V
C274	1-123-357-00	ELECT	22uF	20%	50V	C415	1-130-480-00	MYLAR	0.0056uF	5%	50V
C301	1-123-369-00	ELECT	4.7uF	20%	50V	C416	1-136-153-00	FILM	0.01uF	5%	50V
C302	1-123-369-00	ELECT	4.7uF	20%	50V	C417	1-126-059-11	ELECT	10uF	20%	50V
C303	1-123-369-00	ELECT	4.7uF	20%	50V	C418	1-123-357-00	ELECT	22uF	20%	50V
C304	1-130-475-00	MYLAR	0.0022uF	5%	50V	C419	1-130-474-00	MYLAR	0.0018uF	5%	50V
C305	1-130-475-00	MYLAR	0.0022uF	5%	50V	C420	1-126-059-11	ELECT	10uF	20%	50V
C306	1-130-478-00	MYLAR	0.0039uF	5%	50V	C421	1-136-163-00	FILM	0.068uF	5%	50V
C307	1-136-173-00	FILM	0.47uF	5%	50V	C422	1-126-059-11	ELECT	10uF	20%	50V
C308	1-136-167-00	FILM	0.15uF	5%	50V	C423	1-109-619-00	MICA	180PF	1%	500V
C309	1-136-155-00	FILM	0.015uF	5%	50V	C424	1-107-210-00	MICA	22PF	5%	500V
C310	1-124-903-11	ELECT	1uF	20%	50V	C425	1-136-155-00	FILM	0.015uF	5%	50V
C311	1-136-169-00	FILM	0.22uF	5%	50V	C426	1-136-160-00	FILM	0.039uF	5%	50V
C312	1-136-162-00	FILM	0.056uF	5%	50V	C427	1-136-155-00	FILM	0.015uF	5%	50V
C313	1-124-903-11	ELECT	1uF	20%	50V	C428	1-136-153-00	FILM	0.01uF	5%	50V
C314	1-136-163-00	FILM	0.068uF	5%	50V	C429	1-136-156-00	FILM	0.018uF	5%	50V
C315	1-130-480-00	MYLAR	0.0056uF	5%	50V	C430	1-107-169-00	MICA	100PF	5%	500V
C316	1-136-153-00	FILM	0.01uF	5%	50V	C431	1-136-803-11	FILM	560PF	5%	630V
C317	1-126-059-11	ELECT	10uF	20%	50V	C432	1-110-341-11	MYLAR	330PF	5%	50V
C318	1-123-357-00	ELECT	22uF	20%	50V	C433	1-136-153-00	FILM	0.01uF	5%	50V
C319	1-130-474-00	MYLAR	0.0018uF	5%	50V	C434	1-136-157-00	FILM	0.022uF	5%	50V
C320	1-126-059-11	ELECT	10uF	20%	50V	C435	1-136-165-00	FILM	0.1uF	5%	50V
C321	1-136-163-00	FILM	0.068uF	5%	50V	C501	1-130-475-00	MYLAR	0.0022uF	5%	50V
C322	1-126-059-11	ELECT	10uF	20%	50V	C502	1-136-165-00	FILM	0.1uF	5%	50V
C323	1-109-619-00	MICA	180PF	1%	500V	C503	1-124-902-00	ELECT	0.47uF	20%	50V
C324	1-107-210-00	MICA	22PF	5%	500V	C505	1-124-907-11	ELECT	10uF	20%	50V
C325	1-136-155-00	FILM	0.015uF	5%	50V	C506	1-124-925-11	ELECT	2.2uF	20%	100V
C326	1-136-160-00	FILM	0.039uF	5%	50V	C507	1-124-925-11	ELECT	2.2uF	20%	100V
C327	1-136-155-00	FILM	0.015uF	5%	50V	C508	1-124-477-11	ELECT	47uF	20%	25V
C328	1-136-153-00	FILM	0.01uF	5%	50V	C551	1-136-157-00	FILM	0.022uF	5%	50V
C329	1-136-156-00	FILM	0.018uF	5%	50V	C552	1-136-157-00	FILM	0.022uF	5%	50V
C330	1-107-169-00	MICA	100PF	5%	500V	C553	1-130-474-00	MYLAR	0.0018uF	5%	50V
C331	1-136-803-11	FILM	560PF	5%	630V	C554	1-130-474-00	MYLAR	0.0018uF	5%	50V
C332	1-110-341-11	MYLAR	330PF	5%	50V	C555	1-124-925-11	ELECT	2.2uF	20%	100V
C333	1-136-153-00	FILM	0.01uF	5%	50V	C556	1-136-228-11	FILM	0.0012uF	5%	100V
C334	1-136-157-00	FILM	0.022uF	5%	50V	C557	1-136-233-11	FILM	0.0047uF	5%	100V
C335	1-136-165-00	FILM	0.1uF	5%	50V	C558	1-136-228-11	FILM	0.0012uF	5%	100V
C401	1-123-369-00	ELECT	4.7uF	20%	50V	C559	1-124-907-11	ELECT	10uF	20%	50V
C402	1-123-369-00	ELECT	4.7uF	20%	50V	C560	1-124-925-11	ELECT	2.2uF	20%	100V
C403	1-123-369-00	ELECT	4.7uF	20%	50V	C561	1-136-559-11	FILM	0.0047uF	5%	630V
C404	1-130-475-00	MYLAR	0.0022uF	5%	50V	C562	1-124-907-11	ELECT	10uF	20%	50V
C405	1-130-475-00	MYLAR	0.0022uF	5%	50V	C563	1-107-045-00	MICA	3.9PF		500V
C406	1-130-478-00	MYLAR	0.0039uF	5%	50V	C564	1-126-059-11	ELECT	10uF	20%	50V
C407	1-136-173-00	FILM	0.47uF	5%	50V	C565	1-124-477-11	ELECT	47uF	20%	25V
C408	1-136-167-00	FILM	0.15uF	5%	50V	C589	1-136-161-00	FILM	0.047uF	5%	50V
C409	1-136-155-00	FILM	0.015uF	5%	50V	C591	1-162-282-31	CERAMIC	100PF	10%	50V
C410	1-124-903-11	ELECT	1uF	20%	50V	C598	1-161-494-00	CERAMIC	0.022uF		25V
C411	1-136-169-00	FILM	0.22uF	5%	50V	C601	1-126-982-11	ELECT	5600uF	20%	0
C412	1-136-162-00	FILM	0.056uF	5%	50V	C602	1-126-982-11	ELECT	5600uF	20%	0
C413	1-124-903-11	ELECT	1uF	20%	50V	C603	1-124-922-11	ELECT	1000uF	20%	63V

When indicating parts by reference number, please include the board name.

MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C604	1-124-922-11	ELECT	1000uF 20% 63V	D203	8-719-912-20	DIODE	ISS120
C605	1-136-161-00	FILM	0.047uF 5% 50V	D204	8-719-912-20	DIODE	ISS120
C606	1-136-177-00	FILM	1uF 5% 50V	D501	8-719-912-20	DIODE	ISS120
C607	1-124-122-11	ELECT	100uF 20% 50V	D502	8-719-912-20	DIODE	ISS120
C701	1-124-887-00	ELECT	3300uF 20% 16V	D503	8-719-912-20	DIODE	ISS120
C702	1-124-471-00	ELECT	1000uF 20% 6.3V	D504	8-719-912-20	DIODE	ISS120
C703	1-124-927-11	ELECT	4.7uF 20% 100V	D505	8-719-912-20	DIODE	ISS120
C704	1-126-105-11	ELECT	1000uF 20% 35V	D506	8-719-912-20	DIODE	ISS120
C705	1-124-473-11	ELECT	1000uF 20% 10V	D507	8-719-912-20	DIODE	ISS120
C706	1-124-927-11	ELECT	4.7uF 20% 100V	D508	8-719-912-20	DIODE	ISS120
C707	1-124-927-11	ELECT	4.7uF 20% 100V	D509	8-719-912-20	DIODE	ISS120
C708	1-126-955-11	ELECT	4700uF 20% 35V	D551	8-719-912-20	DIODE	ISS120
C709	1-124-556-11	ELECT	2200uF 20% 16V	D552	8-719-912-20	DIODE	ISS120
C710	1-124-927-11	ELECT	4.7uF 20% 100V	D553	8-719-912-20	DIODE	ISS120
C711	1-124-122-11	ELECT	100uF 20% 50V	D554	8-719-912-20	DIODE	ISS120
C712	1-124-477-11	ELECT	47uF 20% 25V	D555	8-719-912-20	DIODE	ISS120
C713	1-164-159-11	CERAMIC	0.1uF 50V	D556	8-719-912-20	DIODE	ISS120
C714	1-124-927-11	ELECT	4.7uF 20% 100V	D601	8-719-230-02	DIODE	30DF2
C801	1-124-443-00	ELECT	100uF 20% 10V	D602	8-719-230-02	DIODE	30DF2
C802	1-124-472-11	ELECT	470uF 20% 10V	D603	8-719-230-02	DIODE	30DF2
C803	1-124-477-11	ELECT	47uF 20% 25V	D604	8-719-230-02	DIODE	30DF2
C804	1-124-927-11	ELECT	4.7uF 20% 100V	D605	8-719-933-41	DIODE	HZS6C3L
C805	1-126-059-11	ELECT	10uF 20% 50V	D701	8-719-200-77	DIODE	10E2N
C806	1-164-159-11	CERAMIC	0.1uF 50V	D702	8-719-200-77	DIODE	10E2N
C807	1-164-159-11	CERAMIC	0.1uF 50V	D703	8-719-200-77	DIODE	10E2N
< CONNECTOR >							
CN501	* 1-560-062-00	PIN, CONNECTOR 4P		D704	8-719-200-77	DIODE	10E2N
CN502	* 1-564-666-11	PIN, CONNECTOR 10P		D705	8-719-200-77	DIODE	10E2N
CN503	* 1-560-063-00	PIN, CONNECTOR 5P		D706	8-719-200-77	DIODE	10E2N
CN551	* 1-564-510-11	PLUG, CONNECTOR 7P		D707	8-719-200-77	DIODE	10E2N
CN553	* 1-564-507-11	PLUG, CONNECTOR 4P		D708	8-719-933-41	DIODE	HZS6C3L
CN555	* 1-564-509-11	PLUG, CONNECTOR 6P		D712	8-719-933-41	DIODE	HZS6C3L
CN556	* 1-560-062-00	PIN, CONNECTOR 4P		D713	8-719-001-79	DIODE	UZL-12H1
CN557	* 1-560-061-00	PIN, CONNECTOR 3P		D714	8-719-015-02	DIODE	UZP-8.2BB
CN701	* 1-564-514-11	PLUG, CONNECTOR 11P		D715	8-719-200-77	DIODE	10E2N
CN801	* 1-564-666-11	PIN, CONNECTOR 10P		D716	8-719-912-20	DIODE	ISS120
CN802	* 1-564-342-11	PIN, CONNECTOR 8P		D801	8-719-200-77	DIODE	10E2N
CN803	* 1-564-336-00	PIN, CONNECTOR 2P		D802	8-719-912-20	DIODE	ISS120
< COMPOSITION CIRCUIT BLOCK >							
CP801	1-236-984-11	COMPOSITION CIRCUIT BLOCK		< FUSE >			
< DIODE >							
D101	8-719-912-20	DIODE	ISS120	F801	△ 1-532-741-11	FUSE, GLASS TUBE (1.25A) (K870ES; US, CA)	
D102	8-719-000-54	DIODE	UZL-6L3		△ 1-532-285-11	FUSE, TIME-LAG (1.25A) (K870ES; UK, AE4, E2/E3 K222ESL; E2/E3)	
D103	8-719-912-20	DIODE	ISS120				
D104	8-719-912-20	DIODE	ISS120				
D201	8-719-912-20	DIODE	ISS120				
D202	8-719-000-54	DIODE	UZL-6L3				
< IC >							
				IC501	8-759-900-72	IC	NE5532P
				IC502	8-752-018-80	IC	CX2018B
				IC503	8-759-630-43	IC	M4066BPK
				IC504	8-759-945-58	IC	RC4558P
				IC505	8-759-634-50	IC	M5218AL

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
IC506	8-759-634-50	IC M5218AL		Q205	8-729-224-62	TRANSISTOR	2SK246-GR
IC507	8-759-634-50	IC M5218AL		Q206	8-729-922-37	TRANSISTOR	2SD2144S-UVW
IC551	8-759-710-59	IC NJM4580D-D		Q207	8-729-922-37	TRANSISTOR	2SD2144S-UVW
IC552	8-752-018-80	IC CX20188		Q208	8-729-922-37	TRANSISTOR	2SD2144S-UVW
IC553	8-759-710-59	IC NJM4580D-D		Q301	8-729-922-37	TRANSISTOR	2SD2144S-UVW
IC554	8-759-106-56	IC uPC1297CA		Q302	8-729-922-37	TRANSISTOR	2SD2144S-UVW
IC555	8-759-634-50	IC M5218AL		Q303	8-729-922-37	TRANSISTOR	2SD2144S-UVW
IC801	8-759-635-69	IC M50964-226SP		Q304	8-729-922-37	TRANSISTOR	2SD2144S-UVW
IC802	8-759-973-95	IC BA6219B		Q305	8-729-922-37	TRANSISTOR	2SD2144S-UVW
IC803	8-759-822-09	IC LB1641		Q306	8-729-900-80	TRANSISTOR	DTC114ES
		< JACK >		Q401	8-729-922-37	TRANSISTOR	2SD2144S-UVW
J501	1-565-320-61	JACK, PIN 6P		Q402	8-729-922-37	TRANSISTOR	2SD2144S-UVW
		< COIL >		Q403	8-729-922-37	TRANSISTOR	2SD2144S-UVW
				Q404	8-729-922-37	TRANSISTOR	2SD2144S-UVW
				Q405	8-729-922-37	TRANSISTOR	2SD2144S-UVW
L101	1-408-927-11	INDUCTOR	18mH	Q406	8-729-900-80	TRANSISTOR	DTC114ES
L201	1-408-927-11	INDUCTOR	18mH	Q501	8-729-922-37	TRANSISTOR	2SD2144S-UVW
L301	1-408-920-00	INDUCTOR	4.7mH	Q502	8-729-922-37	TRANSISTOR	2SD2144S-UVW
L302	1-408-918-11	INDUCTOR	3.3mH	Q503	8-729-900-89	TRANSISTOR	DTC144ES
L303	1-408-916-11	INDUCTOR	2.2mH	Q504	8-729-900-80	TRANSISTOR	DTC114ES
L304	1-408-929-00	INDUCTOR	27mH	Q505	8-729-900-89	TRANSISTOR	DTC144ES
L305	1-410-769-31	INDUCTOR	3.3mH	Q551	8-729-194-57	TRANSISTOR	2SC945-P
L401	1-408-920-00	INDUCTOR	4.7mH	Q552	8-729-194-57	TRANSISTOR	2SC945-P
L402	1-408-918-11	INDUCTOR	3.3mH	Q553	8-729-281-52	TRANSISTOR	2SC1815-Y
L403	1-408-916-11	INDUCTOR	2.2mH	Q554	8-729-900-80	TRANSISTOR	DTC114ES
L404	1-408-929-00	INDUCTOR	27mH	Q555	8-729-900-61	TRANSISTOR	DTA114ES
L405	1-410-769-31	INDUCTOR	3.3mH	Q556	8-729-900-80	TRANSISTOR	DTC114ES
		< LOW PASS FILTER >		Q557	8-729-900-80	TRANSISTOR	DTC114ES
LPF301	1-236-087-11	FILTER, LOW PASS		Q558	8-729-900-80	TRANSISTOR	DTC114ES
LPF401	1-236-087-11	FILTER, LOW PASS		Q559	8-729-900-89	TRANSISTOR	DTC144ES
		< PILOT LAMP >		Q560	8-729-900-89	TRANSISTOR	DTC144ES
PL551	1-518-471-31	LAMP, PILOT		Q601	8-729-107-53	TRANSISTOR	2SC2275A-P
PL552	1-518-471-31	LAMP, PILOT		Q602	8-729-190-53	TRANSISTOR	2SA985A-P
		< TRANSISTOR >		Q603	8-729-922-37	TRANSISTOR	2SD2144S-UVW
Q101	8-729-217-03	TRANSISTOR	2SK170-BL	Q604	8-729-224-62	TRANSISTOR	2SK246-GR
Q102	8-729-217-03	TRANSISTOR	2SK170-BL	Q605	8-729-141-32	TRANSISTOR	2SA1409-LK
Q103	8-729-375-61	TRANSISTOR	2SD756-D	Q606	8-729-224-62	TRANSISTOR	2SK246-GR
Q104	8-729-194-57	TRANSISTOR	2SC945-P	Q607	8-729-620-05	TRANSISTOR	2SC2603-EF
Q105	8-729-224-62	TRANSISTOR	2SK246-GR	Q611	8-729-119-76	TRANSISTOR	2SA1175-HFE
Q106	8-729-922-37	TRANSISTOR	2SD2144S-UVW	Q701	8-729-111-55	TRANSISTOR	2SD1312-K
Q107	8-729-922-37	TRANSISTOR	2SD2144S-UVW	Q702	8-729-111-55	TRANSISTOR	2SD1312-K
Q108	8-729-922-37	TRANSISTOR	2SD2144S-UVW	Q703	8-729-620-05	TRANSISTOR	2SC2603-EF
Q201	8-729-217-03	TRANSISTOR	2SK170-BL	Q704	8-729-922-37	TRANSISTOR	2SD2144S-UVW
Q202	8-729-217-03	TRANSISTOR	2SK170-BL	Q706	8-729-922-37	TRANSISTOR	2SD2144S-UVW
Q203	8-729-375-61	TRANSISTOR	2SD756-D	Q707	8-729-620-05	TRANSISTOR	2SC2603-EF
Q204	8-729-194-57	TRANSISTOR	2SC945-P	Q708	8-729-922-37	TRANSISTOR	2SD2144S-UVW
				Q709	8-729-140-04	TRANSISTOR	2SB116A-L
				Q710	8-729-141-32	TRANSISTOR	2SA1409-LK
				Q801	8-729-900-65	TRANSISTOR	DTA144ES
				Q802	8-729-900-65	TRANSISTOR	DTA144ES

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MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
Q803	8-729-900-65	TRANSISTOR	DTA144ES	R137	1-215-444-00	METAL	9.1K 1% 1/6W
Q804	8-729-900-65	TRANSISTOR	DTA144ES	R138	1-215-465-00	METAL	68K 1% 1/6W
Q805	8-729-119-76	TRANSISTOR	2SA1175-HFE	R139	1-215-448-00	METAL	13K 1% 1/6W
Q806	8-729-900-65	TRANSISTOR	DTA144ES	R140	1-215-471-00	METAL	120K 1% 1/6W
Q807	8-729-900-65	TRANSISTOR	DTA144ES	R141	1-249-408-11	CARBON	180 5% 1/4W
Q808	8-729-119-76	TRANSISTOR	2SA1175-HFE	R142	1-247-883-00	CARBON	150K 5% 1/4W
Q809	8-729-900-65	TRANSISTOR	DTA144ES	R143	1-249-429-11	CARBON	10K 5% 1/4W
Q810	8-729-119-76	TRANSISTOR	2SA1175-HFE	R201	1-249-844-11	CARBON	56K 5% 1/2W
Q811	8-729-119-76	TRANSISTOR	2SA1175-HFE	R202	1-247-740-11	CARBON	120 5% 1/2W
Q812	8-729-900-61	TRANSISTOR	DTA114ES	R203	1-249-462-11	CARBON	22K 5% 1/4W
Q813	8-729-620-05	TRANSISTOR	2SC2603-EF	R204	1-249-723-11	CARBON	120K 5% 1/2W
Q814	8-729-620-05	TRANSISTOR	2SC2603-EF	R205	1-247-255-00	CARBON	4.3K 5% 1/2W
< RESISTOR >				R206	1-247-128-00	CARBON	750 5% 1/4W
R207	1-247-128-00	CARBON		R208	1-247-700-11	CARBON	750 5% 1/4W
R209	1-247-700-11	CARBON		R210	1-247-700-11	CARBON	100 5% 1/4W
R211	1-249-844-11	CARBON		R212	1-247-704-11	CARBON	390 5% 1/4W
R213	1-247-717-11	CARBON		R214	1-247-720-11	CARBON	3.9K 5% 1/4W
R215	1-247-720-11	CARBON		R216	1-247-720-11	CARBON	220 5% 1/4W
R217	1-247-725-11	CARBON		R218	1-247-725-11	CARBON	2.2K 5% 1/4W
R219	1-247-725-11	CARBON		R219	1-247-725-11	CARBON	5.1K 5% 1/4W
R220	1-247-730-11	CARBON		R220	1-247-730-11	CARBON	2.7K 5% 1/4W
R221	1-247-730-11	CARBON		R221	1-247-730-11	CARBON	1.0M 5% 1/4W
R222	1-247-735-11	CARBON		R222	1-247-735-11	CARBON	560 5% 1/4W
R223	1-247-735-11	CARBON		R223	1-247-735-11	CARBON	22K 5% 1/4W
R224	1-247-740-11	CARBON		R224	1-247-740-11	CARBON	7.5K 5% 1/4W
R225	1-247-740-11	CARBON		R225	1-247-740-11	CARBON	680 5% 1/4W
R226	1-247-745-11	CARBON		R226	1-247-745-11	CARBON	9.1K 5% 1/4W
R227	1-247-745-11	CARBON		R227	1-247-745-11	CARBON	47K 5% 1/4W
R228	1-247-750-11	CARBON		R228	1-247-750-11	CARBON	47K 5% 1/4W
R229	1-247-750-11	CARBON		R229	1-247-750-11	CARBON	2.2K 5% 1/2W
R230	1-247-755-11	CARBON		R230	1-247-755-11	CARBON	1K 5% 1/2W
R231	1-247-760-11	CARBON		R231	1-247-760-11	CARBON	18K 5% 1/4W
R232	1-247-765-11	CARBON		R232	1-247-765-11	CARBON	2.2K 5% 1/4W
R233	1-247-765-11	CARBON		R233	1-247-765-11	CARBON	10K 5% 1/4W
R234	1-247-770-11	CARBON		R234	1-247-770-11	CARBON	22K 5% 1/4W
R235	1-247-770-11	CARBON		R235	1-247-770-11	CARBON	1K 5% 1/4W
R236	1-247-775-11	CARBON		R236	1-247-775-11	CARBON	47K 5% 1/4W
R237	1-247-780-11	CARBON		R237	1-247-780-11	CARBON	6.8K 5% 1/4W
R238	1-247-780-11	CARBON		R238	1-247-780-11	CARBON	9.1K 1% 1/6W
R239	1-247-785-11	CARBON		R239	1-247-785-11	CARBON	68K 1% 1/6W
R240	1-247-790-11	CARBON		R240	1-247-790-11	CARBON	13K 1% 1/6W
R241	1-247-795-11	CARBON		R241	1-247-795-11	CARBON	120K 1% 1/6W
R242	1-247-800-11	CARBON		R242	1-247-800-11	CARBON	180 5% 1/4W
R243	1-247-805-11	CARBON		R243	1-247-805-11	CARBON	150K 5% 1/4W
R244	1-247-810-11	CARBON		R244	1-247-810-11	CARBON	10K 5% 1/4W

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MAIN

Ref. No.	Part No.	Description		Remarks	Ref. No.	Part No.	Description		Remarks
R301	1-249-703-11	CARBON	18K	5% 1/2W	R407	1-247-152-00	CARBON	7.5K	5% 1/4W
R302	1-249-490-11	CARBON	27K	5% 1/2W	R408	1-249-465-11	CARBON	47K	5% 1/4W
R303	1-249-469-11	CARBON	100K	5% 1/4W	R409	1-249-465-11	CARBON	47K	5% 1/4W
R304	1-247-723-11	CARBON	6.8K	5% 1/4W	R410	1-249-543-11	CARBON	430	5% 1/4W
R305	1-247-720-11	CARBON	3.9K	5% 1/4W	R411	1-247-725-11	CARBON	10K	5% 1/4W
R306	1-247-719-11	CARBON	3.3K	5% 1/4W	R412	1-247-718-11	CARBON	2.7K	5% 1/4W
R307	1-247-152-00	CARBON	7.5K	5% 1/4W	R413	1-247-148-00	CARBON	5.1K	5% 1/4W
R308	1-249-465-11	CARBON	47K	5% 1/4W	R414	1-246-545-00	CARBON	1.0M	5% 1/4W
R309	1-249-465-11	CARBON	47K	5% 1/4W	R415	1-247-710-11	CARBON	560	5% 1/4W
R310	1-249-543-11	CARBON	430	5% 1/4W	R416	1-249-462-11	CARBON	22K	5% 1/4W
R311	1-247-725-11	CARBON	10K	5% 1/4W	R417	1-247-854-11	CARBON	9.1K	5% 1/4W
R312	1-247-718-11	CARBON	2.7K	5% 1/4W	R418	1-247-852-11	CARBON	7.5K	5% 1/4W
R313	1-247-148-00	CARBON	5.1K	5% 1/4W	R419	1-249-415-11	CARBON	680	5% 1/4W
R314	1-246-545-00	CARBON	1.0M	5% 1/4W	R420	1-249-462-11	CARBON	22K	5% 1/4W
R315	1-247-710-11	CARBON	560	5% 1/4W	R421	1-247-719-11	CARBON	3.3K	5% 1/4W
R316	1-249-462-11	CARBON	22K	5% 1/4W	R422	1-247-723-11	CARBON	6.8K	5% 1/4W
R317	1-247-854-11	CARBON	9.1K	5% 1/4W	R423	1-249-497-11	CARBON	33K	5% 1/4W
R318	1-247-852-11	CARBON	7.5K	5% 1/4W	R424	1-249-465-11	CARBON	47K	5% 1/4W
R319	1-249-415-11	CARBON	680	5% 1/4W	R425	1-249-556-11	CARBON	1.5K	5% 1/4W
R320	1-249-462-11	CARBON	22K	5% 1/4W	R426	1-249-598-11	CARBON	82K	5% 1/4W
R321	1-247-719-11	CARBON	3.3K	5% 1/4W	R427	1-259-467-11	CARBON	43K	5% 1/4W
R322	1-247-723-11	CARBON	6.8K	5% 1/4W	R428	1-247-718-11	CARBON	2.7K	5% 1/4W
R323	1-249-497-11	CARBON	33K	5% 1/4W	R429	1-247-702-11	CARBON	150	5% 1/4W
R324	1-249-465-11	CARBON	47K	5% 1/4W	R430	1-249-462-11	CARBON	22K	5% 1/4W
R325	1-249-556-11	CARBON	1.5K	5% 1/4W	R431	1-247-722-11	CARBON	5.6K	5% 1/4W
R326	1-249-598-11	CARBON	82K	5% 1/4W	R432	1-247-701-11	CARBON	120	5% 1/4W
R327	1-259-467-11	CARBON	43K	5% 1/4W	R433	1-247-725-11	CARBON	10K	5% 1/4W
R328	1-247-718-11	CARBON	2.7K	5% 1/4W	R434	1-247-721-11	CARBON	4.7K	5% 1/4W
R329	1-247-702-11	CARBON	150	5% 1/4W	R435	1-247-700-11	CARBON	100	5% 1/4W
R330	1-249-462-11	CARBON	22K	5% 1/4W	R436	1-249-429-11	CARBON	10K	5% 1/4W
R331	1-247-722-11	CARBON	5.6K	5% 1/4W	R437	1-249-429-11	CARBON	10K	5% 1/4W
R332	1-247-701-11	CARBON	120	5% 1/4W	R438	1-249-429-11	CARBON	10K	5% 1/4W
R333	1-247-725-11	CARBON	10K	5% 1/4W	R439	1-249-429-11	CARBON	10K	5% 1/4W
R334	1-247-721-11	CARBON	4.7K	5% 1/4W	R440	1-249-421-11	CARBON	2.2K	5% 1/4W
R335	1-247-700-11	CARBON	100	5% 1/4W	R441	1-249-604-11	CARBON	150K	5% 1/4W
R336	1-249-429-11	CARBON	10K	5% 1/4W	R442	△ 1-212-857-00	FUSIBLE	10	5% 1/4W F
R337	1-249-429-11	CARBON	10K	5% 1/4W	R443	1-249-439-11	CARBON	68K	5% 1/4W
R338	1-249-429-11	CARBON	10K	5% 1/4W	R444	1-249-426-11	CARBON	5.6K	5% 1/4W
R339	1-249-429-11	CARBON	10K	5% 1/4W	R501	1-249-433-11	CARBON	22K	5% 1/4W
R340	1-249-421-11	CARBON	2.2K	5% 1/4W	R502	1-249-433-11	CARBON	22K	5% 1/4W
R341	1-249-604-11	CARBON	150K	5% 1/4W	R503	1-249-469-11	CARBON	100K	5% 1/4W
R342	△ 1-212-857-00	FUSIBLE	10	5% 1/4W F	R504	1-249-465-11	CARBON	47K	5% 1/4W
R343	1-249-439-11	CARBON	68K	5% 1/4W	R505	1-215-472-00	METAL	130K	1% 1/6W
R344	1-249-426-11	CARBON	5.6K	5% 1/4W	R506	1-249-437-11	CARBON	47K	5% 1/4W
R401	1-249-703-11	CARBON	18K	5% 1/2W	R507	1-249-433-11	CARBON	22K	5% 1/4W
R402	1-249-490-11	CARBON	27K	5% 1/2W	R508	1-249-417-11	CARBON	1K	5% 1/4W
R403	1-249-469-11	CARBON	100K	5% 1/4W	R509	1-247-885-00	CARBON	180K	5% 1/4W
R404	1-247-723-11	CARBON	6.8K	5% 1/4W	R510	1-249-433-11	CARBON	22K	5% 1/4W
R405	1-247-720-11	CARBON	3.9K	5% 1/4W	R511	1-249-413-11	CARBON	470	5% 1/4W
R406	1-247-719-11	CARBON	3.3K	5% 1/4W	R512	1-249-413-11	CARBON	470	5% 1/4W

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

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Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

MAIN

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R513	1-249-432-11	CARBON	18K 5% 1/4W	R701	1-249-421-11	CARBON	2.2K 5% 1/4W
R514	1-249-433-11	CARBON	22K 5% 1/4W	R702	1-249-421-11	CARBON	2.2K 5% 1/4W
R515	1-249-437-11	CARBON	47K 5% 1/4W	R703	1-249-421-11	CARBON	2.2K 5% 1/4W
R516	1-249-437-11	CARBON	47K 5% 1/4W	R704	1-249-425-11	CARBON	4.7K 5% 1/4W
R517	1-249-437-11	CARBON	47K 5% 1/4W	R706	1-249-425-11	CARBON	4.7K 5% 1/4W
R518	1-249-429-11	CARBON	10K 5% 1/4W	R707	1-249-421-11	CARBON	2.2K 5% 1/4W
R519	1-249-429-11	CARBON	10K 5% 1/4W	R708	1-249-421-11	CARBON	2.2K 5% 1/4W
R520	1-249-437-11	CARBON	47K 5% 1/4W	R709	1-249-427-11	CARBON	6.8K 5% 1/4W
R521	1-249-429-11	CARBON	10K 5% 1/4W	R710	1-249-425-11	CARBON	4.7K 5% 1/4W
R522	1-249-437-11	CARBON	47K 5% 1/4W	R711	1-249-431-11	CARBON	15K 5% 1/4W
R523	1-249-421-11	CARBON	2.2K 5% 1/4W	R712	1-249-429-11	CARBON	10K 5% 1/4W
R550	1-215-472-00	METAL	130K 1% 1/6W	R713	1-249-441-11	CARBON	100K 5% 1/4W
R551	1-249-432-11	CARBON	18K 5% 1/4W	R714	1-249-425-11	CARBON	4.7K 5% 1/4W
R552	1-249-433-11	CARBON	22K 5% 1/4W	R715	1-247-752-11	CARBON	1K 5% 1/2W
R553	1-249-406-11	CARBON	120 5% 1/4W	R801	1-249-429-11	CARBON	10K 5% 1/4W
R554	1-249-432-11	CARBON	18K 5% 1/4W	R802	1-249-429-11	CARBON	10K 5% 1/4W
R555	1-249-397-11	CARBON	22 5% 1/4W	R803	1-249-440-11	CARBON	82K 5% 1/4W
R556	1-247-856-00	CARBON	11K 5% 1/4W	R804	1-249-429-11	CARBON	10K 5% 1/4W
R557	1-249-429-11	CARBON	10K 5% 1/4W	R805	1-249-429-11	CARBON	10K 5% 1/4W
R558	1-249-406-11	CARBON	120 5% 1/4W	R806	1-249-429-11	CARBON	10K 5% 1/4W
R559	1-247-856-00	CARBON	11K 5% 1/4W	R807	1-249-429-11	CARBON	10K 5% 1/4W
R560	1-249-397-11	CARBON	22 5% 1/4W	R808	1-249-421-11	CARBON	2.2K 5% 1/4W
R561	1-247-887-00	CARBON	220K 5% 1/4W	R809	1-249-421-11	CARBON	2.2K 5% 1/4W
R562	1-247-887-00	CARBON	220K 5% 1/4W	R810	1-249-429-11	CARBON	10K 5% 1/4W
R563	1-249-407-11	CARBON	150 5% 1/4W	R811	1-249-435-11	CARBON	33K 5% 1/4W
R564	1-249-437-11	CARBON	47K 5% 1/4W	R812	1-249-429-11	CARBON	10K 5% 1/4W
R565	1-249-441-11	CARBON	100K 5% 1/4W	R813	1-249-413-11	CARBON	470 5% 1/4W
R566	1-249-421-11	CARBON	2.2K 5% 1/4W	R814	1-249-436-11	CARBON	39K 5% 1/4W
R567	1-249-440-11	CARBON	82K 5% 1/4W	R815	1-249-436-11	CARBON	39K 5% 1/4W
R568	1-249-440-11	CARBON	82K 5% 1/4W	R816	1-247-903-00	CARBON	1M 5% 1/4W
R569	▲ 1-212-853-00	FUSIBLE	6.8 5% 1/4W F	R817	1-249-425-11	CARBON	4.7K 5% 1/4W
R570	▲ 1-212-853-00	FUSIBLE	6.8 5% 1/4W F	R818	1-249-417-11	CARBON	1K 5% 1/4W
R571	1-249-427-11	CARBON	6.8K 5% 1/4W	R819	1-249-435-11	CARBON	33K 5% 1/4W
R572	1-249-381-11	CARBON	1 5% 1/4W	R820	1-249-437-11	CARBON	47K 5% 1/4W
R573	1-249-421-11	CARBON	2.2K 5% 1/4W	R821	1-249-484-11	CARBON	6.8 5% 1/2W
R574	1-249-417-11	CARBON	1K 5% 1/4W	R822	1-249-484-11	CARBON	6.8 5% 1/2W
R575	1-249-433-11	CARBON	22K 5% 1/4W	R823	1-247-854-11	CARBON	9.1K 5% 1/4W
R576	1-249-414-11	CARBON	560 5% 1/4W	R824	1-249-425-11	CARBON	4.7K 5% 1/4W
R577	1-247-830-11	CARBON	910 5% 1/4W	R825	1-249-425-11	CARBON	4.7K 5% 1/4W
R578	1-249-425-11	CARBON	4.7K 5% 1/4W	R826	1-249-425-11	CARBON	4.7K 5% 1/4W
R601	▲ 1-212-863-00	FUSIBLE	18 5% 1/4W F	R827	1-249-425-11	CARBON	4.7K 5% 1/4W
R603	1-247-717-11	CARBON	2.2K 5% 1/4W	R828	1-249-426-11	CARBON	5.6K 5% 1/4W
R604	1-247-717-11	CARBON	2.2K 5% 1/4W	R829	1-249-429-11	CARBON	10K 5% 1/4W
R605	1-247-706-11	CARBON	330 5% 1/4W	R830	1-249-429-11	CARBON	10K 5% 1/4W
R606	1-249-556-11	CARBON	1.5K 5% 1/4W	R831	1-249-427-11	CARBON	6.8K 5% 1/4W
R607	1-249-556-11	CARBON	1.5K 5% 1/4W	R832	1-249-428-11	CARBON	8.2K 5% 1/4W
R608	1-249-926-11	CARBON	1.3K 5% 1/4W	R833	1-249-429-11	CARBON	10K 5% 1/4W
R609	1-247-717-11	CARBON	2.2K 5% 1/4W	R834	1-249-429-11	CARBON	10K 5% 1/4W
R611	1-247-704-11	CARBON	220 5% 1/4W	R835	1-249-413-11	CARBON	470 5% 1/4W
R612	1-247-704-11	CARBON	220 5% 1/4W				

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When indicating parts by reference number, please include the board name.

MAIN	REAL MOTOR	PANEL
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Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks				
< VARIABLE RESISTOR >											
RV101	1-241-338-11	RES, ADJ, CARBON 200 (PB LEVEL L)		R1051	1-249-412-11	CARBON	390 5% 1/4W				
RV102	1-238-602-11	RES, ADJ, CARBON 47K (CA METER L)					*****				
RV201	1-241-338-11	RES, ADJ, CARBON 200 (PB LEVEL R)					*****				
RV202	1-238-602-11	RES, ADJ, CARBON 47K (CA METER R)					*****				
RV301	1-228-993-00	RES, ADJ, METAL4.7K (REC LEVEL L)					* A-2006-551-A PANEL BOARD, COMPLETE				
< RESISTOR >											
RV302	1-238-599-11	RES, ADJ, CARBON 4.7K (BIAS L CH)					*****				
RV303	1-238-601-11	RES, ADJ, CARBON 22K (BIAS L CH)					*****				
RV401	1-228-993-00	RES, ADJ, METAL4.7K (REC LEVEL R)					*****				
RV402	1-238-599-11	RES, ADJ, CARBON 4.7K (BIAS R CH)					*****				
RV403	1-238-601-11	RES, ADJ, CARBON 22K (BIAS R CH)					*****				
< CAPACITOR >											
RV551	1-238-595-11	RES, ADJ, CARBON 220 (400Hz)		C001	1-161-744-00	CERAMIC	0.01uF 400V				
RV552	1-238-595-11	RES, ADJ, CARBON 220 (8kHz)		C181	1-126-059-11	ELECT	10uF 20% 50V				
RV553	1-238-599-11	RES, ADJ, CARBON 4.7K (ERASE CURRENT)		C281	1-126-059-11	ELECT	10uF 20% 50V				
RV554	1-238-602-11	RES, ADJ, CARBON 47K (BIAS)		C341	1-130-473-00	MYLAR	0.0015uF 5% 50V				
RV801	1-238-599-11	RES, ADJ, CARBON 4.7K (FWD TORQUE)		C342	1-130-471-00	MYLAR	0.001uF 5% 50V				
< BIAS OSCILLATOR >											
T301	1-433-379-11	TRANSFORMER, BIAS OSCILLATOR		C441	1-130-473-00	MYLAR	0.0015uF 5% 50V				
T401	1-433-379-11	TRANSFORMER, BIAS OSCILLATOR		C442	1-130-471-00	MYLAR	0.001uF 5% 50V				
T551	1-433-359-11	TRANSFORMER, BIAS OSCILLATION		C541	1-123-369-00	ELECT	4.7uF 20% 50V				
< CONNECTOR PLUG >											
TP551	* 1-564-505-11	PLUG, CONNECTOR 2P		C542	1-123-369-00	ELECT	4.7uF 20% 50V				
TP552	* 1-564-506-11	PLUG, CONNECTOR 3P		C597	1-162-598-11	CERAMIC	0.001uF 10% 1KV				
TP553	* 1-564-506-11	PLUG, CONNECTOR 3P		C901	1-126-177-11	ELECT	100uF 20% 10V				
TP801	* 1-564-506-11	PLUG, CONNECTOR 3P		< CONNECTOR >							
< CRYSTAL >											
X801	1-577-358-21	VIBRATOR, CERAMIC (4.0MHz)		CN001	* 1-568-226-11	PIN, CONNECTOR 2P					
*****				CN002	* 1-568-226-11	PIN, CONNECTOR 2P					
* 1-632-741-11 REAL MOTOR BOARD				CN521	* 1-564-521-11	PLUG, CONNECTOR 6P					
*****				CN543	* 1-560-070-00	BASE POST 5P					
< CAPACITOR >				CN591	* 1-564-519-11	PLUG, CONNECTOR 4P					
C1051	1-124-907-11	ELECT	10uF	CN592	* 1-564-519-11	PLUG, CONNECTOR 4P					
C1052	1-124-907-11	ELECT	10uF	CN593	* 1-564-519-11	PLUG, CONNECTOR 4P					
C1053	1-164-159-11	CERAMIC	0.1uF	CN901	* 1-564-336-00	PIN, CONNECTOR 2P					
< CONNECTOR >				< COMPOSITION CIRCUIT BLOCK >							
CN1051	* 1-564-499-11	PIN, CONNECTOR 6P		CP901	1-232-881-11	COMPOSITION CIRCUIT BLOCK					
CN1052	* 1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P		CP902	1-232-881-11	COMPOSITION CIRCUIT BLOCK					
CN1053	* 1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P		CP903	1-236-985-11	COMPOSITION CIRCUIT BLOCK					
< MOTOR >				< DIODE >							
M1001	X-3356-638-1	MOTOR (REEL R) ASSY		D901	8-719-912-20	DIODE	1SS120				
M1002	X-3356-604-1	MOTOR (ASSIST) ASSY		D902	8-719-912-20	DIODE	1SS120				
				D903	8-719-933-57	DIODE	HZS9B2L				
				D904	8-719-912-20	DIODE	1SS120				
				D905	8-719-912-20	DIODE	1SS120				
				D906	8-719-912-20	DIODE	1SS120				
				D907	8-719-912-20	DIODE	1SS120				
				D908	8-719-912-20	DIODE	1SS120				
				D909	8-719-912-20	DIODE	1SS120				
				D910	8-719-912-20	DIODE	1SS120				
				D911	8-719-912-20	DIODE	1SS120				
				D912	8-719-302-46	DIODE	SEL1210S-C				
				D913	8-719-302-45	DIODE	SEL1210S-C				

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PANEL

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
D914	8-719-302-79	DIODE SEL1910A-C		R386	1-249-462-11	CARBON	22K 5% 1/4W
		< INDICATOR TUBE >		R481	1-247-721-11	CARBON	4.7K 5% 1/4W
				R482	1-247-152-00	CARBON	8.2K 5% 1/4W
				R483	1-247-725-11	CARBON	10K 5% 1/4W
FLT901	1-519-560-11	INDICATOR TUBE, FLUORESCENT		R484	1-247-721-11	CARBON	4.7K 5% 1/4W
		< IC >		R485	1-246-545-00	CARBON	1.0M 5% 1/4W
IC541	8-759-634-51	IC M5218AP		R486	1-249-462-11	CARBON	22K 5% 1/4W
IC901	8-759-635-68	IC M50940-313SP		R590	1-249-429-11	CARBON	10K 5% 1/4W
IC902	8-741-100-48	IC SBX1610-59		R881	1-249-434-11	CARBON	27K 5% 1/4W
		< JACK >		R882	1-249-431-11	CARBON	15K 5% 1/4W
J541	1-507-796-71	JACK		R901	1-249-421-11	CARBON	2.2K 5% 1/4W
		< TRANSISTOR >		R902	1-249-421-11	CARBON	2.2K 5% 1/4W
Q901	8-729-115-28	TRANSISTOR 2SA1511		R903	1-247-895-00	CARBON	470K 5% 1/4W
Q902	8-729-119-76	TRANSISTOR 2SA1175-HFE		R904	1-249-433-11	CARBON	22K 5% 1/4W
Q903	8-729-900-61	TRANSISTOR DTA114ES		R905	1-249-433-11	CARBON	22K 5% 1/4W
Q904	8-729-900-61	TRANSISTOR DTA114ES		R906	1-249-429-11	CARBON	10K 5% 1/4W
Q905	8-729-900-61	TRANSISTOR DTA114ES		R907	1-249-425-11	CARBON	4.7K 5% 1/4W
Q906	8-729-900-61	TRANSISTOR DTA114ES		R908	1-249-431-11	CARBON	15K 5% 1/4W
Q907	8-729-900-65	TRANSISTOR DTA144ES		R909	1-249-422-11	CARBON	2.7K 5% 1/4W
Q908	8-729-900-65	TRANSISTOR DTA144ES		R910	1-249-424-11	CARBON	3.9K 5% 1/4W
Q909	8-729-900-65	TRANSISTOR DTA144ES		R911	1-249-428-11	CARBON	8.2K 5% 1/4W
Q910	8-729-900-65	TRANSISTOR DTA144ES		R912	1-249-434-11	CARBON	27K 5% 1/4W
Q911	8-729-900-89	TRANSISTOR DTC144ES		R913	1-249-422-11	CARBON	2.7K 5% 1/4W
Q912	8-729-900-65	TRANSISTOR DTA144ES		R914	1-249-424-11	CARBON	3.9K 5% 1/4W
Q913	8-729-900-65	TRANSISTOR DTA144ES		R915	1-249-428-11	CARBON	8.2K 5% 1/4W
Q914	8-729-900-65	TRANSISTOR DTA144ES		R916	1-249-434-11	CARBON	27K 5% 1/4W
Q915	8-729-900-89	TRANSISTOR DTC144ES		R917	1-249-431-11	CARBON	15K 5% 1/4W
Q916	8-729-900-65	TRANSISTOR DTA144ES		R918	1-249-409-11	CARBON	220 5% 1/4W
Q917	8-729-900-65	TRANSISTOR DTA144ES		R919	1-249-410-11	CARBON	270 5% 1/4W
Q918	8-729-119-76	TRANSISTOR 2SA1175-HFE		R920	1-249-412-11	CARBON	390 5% 1/4W
Q919	8-729-900-65	TRANSISTOR DTA144ES		R921	1-249-421-11	CARBON	2.2K 5% 1/4W
		< RESISTOR >		R922	1-249-421-11	CARBON	2.2K 5% 1/4W
R001	1-247-752-11	CARBON 1K 5% 1/2W		R923	1-247-903-00	CARBON	1M 5% 1/4W
R181	1-249-429-11	CARBON 10K 5% 1/4W		R925	1-249-425-11	CARBON	4.7K 5% 1/4W
R182	1-249-433-11	CARBON 22K 5% 1/4W		R926	1-249-441-11	CARBON	100K 5% 1/4W
R183	1-249-423-11	CARBON 3.3K 5% 1/4W		R927	1-249-441-11	CARBON	100K 5% 1/4W
R184	1-247-704-11	CARBON 220 5% 1/4W		R928	1-249-441-11	CARBON	100K 5% 1/4W
				R929	1-249-433-11	CARBON	22K 5% 1/4W
				R930	1-249-441-11	CARBON	100K 5% 1/4W
				R931	1-249-425-11	CARBON	4.7K 5% 1/4W
							< VARIABLE RESISTOR >
R281	1-249-429-11	CARBON 10K 5% 1/4W		RV541	1-241-330-11	RES, VAR, CARBON 20K/20K (PHONE LEVEL)	
R282	1-249-433-11	CARBON 22K 5% 1/4W		RV591	1-238-833-21	RES, VAR, CARBON 20K/20K (REC LEVEL)	
R283	1-249-423-11	CARBON 3.3K 5% 1/4W		RV592	1-238-687-11	RES, VAR, CARBON 50K/50K (BALANCE)	
R284	1-247-704-11	CARBON 220 5% 1/4W		RV593	1-241-329-11	RES, VAR, CARBON 5K/5K (REC LEVEL)	
R381	1-247-721-11	CARBON 4.7K 5% 1/4W		RV594	1-241-328-11	RES, VAR, CARBON 10K/10K (BIAS)	
R382	1-247-152-00	CARBON 8.2K 5% 1/4W					< SWITCH >
R383	1-247-725-11	CARBON 10K 5% 1/4W		S541	1-572-583-11	SWITCH, ROTARY (DOLBY NR)	
R384	1-247-721-11	CARBON 4.7K 5% 1/4W					
R385	1-246-545-00	CARBON 1.0M 5% 1/4W					

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PANEL

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
S542	1-572-152-11	SWITCH, PUSH (3 KEY) (CALIBRATION/HX PRO/MPX FILTER)				ACCESSORY & PACKING MATERIAL *****	
S591	1-572-153-11	SWITCH, PUSH (1 KEY) (INPUT)				1-558-787-51 CORD, CONNECTION * 3-354-919-31 INDIVIDUAL CARTON	
S592	1-572-582-11	SWITCH, ROTARY (REC EQ CAL)				(K870ES; US, CA, AE4, E2/E3)	
S701	1-572-267-51	SWITCH, PUSH (AC POWER) (1 KEY) (POWER)				* 3-350-464-71 INDIVIDUAL CARTON (K870ES; UK)	
S801	1-572-268-11	SWITCH, SLIDE (TIMER)				* 3-350-464-81 INDIVIDUAL CARTON (K222ESL; E2/E3)	
S901	1-554-303-21	SWITCH, TACTILE (COUNTER, MEMORY)				* 3-366-547-01 CUSHION (K870ES; US, CA, AE4, E2/E3)	
S902	1-554-303-21	SWITCH, TACTILE (COUNTER, RESET)				* 3-363-900-01 CUSHION (K870ES; UK K222ESL; E2/E3)	
S903	1-554-303-21	SWITCH, TACTILE (COUNTER, DISPLAY MODE)				3-703-450-01 INSTRUCTION (K870ES; US)	
S904	1-554-303-21	SWITCH, TACTILE (OPEN/CLOSE)				3-752-575-21 MANUAL, INSTRUCTION (ENGLISH)	
S905	1-554-303-21	SWITCH, TACTILE (■)				3-752-575-11 MANUAL, INSTRUCTION (ENGLISH/FRENCH/DUTCH/SPANISH)	
S906	1-554-303-21	SWITCH, TACTILE (▲▲)				*****	
S907	1-554-303-21	SWITCH, TACTILE (▶▶)				HARDWARE LIST	
S908	1-554-303-21	SWITCH, TACTILE (REC)			# 1	7-682-548-04 SCREW +BVTT 3X8 (S)	
S909	1-554-303-21	SWITCH, TACTILE (▷)			# 2	7-682-547-04 SCREW +BVTT 3X6 (S)	
S910	1-554-303-21	SWITCH, TACTILE (PAUSE)			# 3	7-682-548-09 SCREW +BVTT 3X8 (S)	
S911	1-554-303-21	SWITCH, TACTILE (▲◀▲)			# 4	7-685-133-19 SCREW +BTP 2.6X6 TYPE2 N-S	
S912	1-554-303-21	SWITCH, TACTILE (▷▷□)			# 5	7-682-547-09 SCREW +BV 3X6, S TIGHT	
S913	1-554-303-21	SWITCH, TACTILE (REC MUTE)			# 6	7-682-147-15 SCREW, TR	
S914	1-554-303-21	SWITCH, TACTILE (MON/TOR)			# 7	7-621-849-00 SCREW (BV/RING)	
		< CRYSTAL >			# 8	7-621-775-10 SCREW +B 2.6X4	
X901	1-577-358-21	VIBRATOR, CERAMIC (4.0MHz)			# 9	7-628-253-00 SCREW +PS 2X4	
		*****			#10	7-621-255-20 SCREW +BVTT 2X4 (S)	
		MISCELLANEOUS *****			#11	7-621-772-10 SCREW +B 2X4	
64	* 1-590-321-51	LEAD (WITH CONNECTOR)			#12	7-671-154-01 STENLESS BALL	
67	△ 1-575-975-11	CORD, POWER (K870ES; US, CA)			#13	7-685-870-01 SCREW +BVTT 3X5 (S)	
	△ 1-575-651-11	CORD, POWER (K870ES; AE4)			#14	7-621-772-70 SCREW +B 2X14	
	△ 1-575-652-11	CORD, POWER (K870ES; UK)			#15	7-622-205-05 NUT M2 TYPE2	
	△ 1-575-653-11	CORD, POWER (E2/E3)			#16	7-628-254-10 SCREW +PS 2.6X6	
146	* 1-608-268-00	PC BOARD, ERASE HEAD			#17	7-682-648-09 SCREW +PS 3X8	
147	1-543-358-11	HEAD, MAGNETIC (ERASE)			#18	7-621-255-35 SCREW +BVTT 2X5 (S)	
148	1-543-684-11	HEAD, MAGNETIC (REC/PB)					
234	1-632-779-11	PC BOARD, FG					
T701	△ 1-450-511-11	TRANSFORMER, POWER (K870ES; US, CA)					
	△ 1-450-512-11	TRANSFORMER, POWER (K870ES; UK, AE4)					
	△ 1-450-513-11	TRANSFORMER, POWER (E2/E3)					

Les composants identifiés par une marque
△ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Sony Corporation

Audio Group

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